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Outsourcing Options to Finance Navy Recapitalization

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 December 2004**

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Our research suggests that current recapitalization goals are financially untenable without significant Defense restructuring. We show with a Marine Corps rescission example that implementing the trade-offs suggested by our analysis would challenge the very way DoD does business. However, we find that the early success of Sea Enterprise in identifying business efficiencies offers the best promise for success. We caution that competitive sourcing must not be purely cost-driven but rather a strategic approach to managing risk. We offer perspectives and considerations beyond the outsourcing roadmap currently provided by OMB Circular A-76.

This study is intended for Navy leaders and other stakeholders who are evaluating the factors constraining fleet re-capitalization, considering the practical ramifications of looming financing decisions, and weighing the strategic and operational risks of competitive sourcing.

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OUTSOURCING OPTIONS TO MEET NAVY RECAPITALIZATION GOALS

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OUTSOURCING OPTIONS TO FINANCE NAVY RECAPITALIZATION

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Navy leadership is searching for ways to finance urgent fleet recapitalization despite severely limited resources. This study exposes the enormity of the recapitalization challenge using budget forecasting and ratio analysis to frame potential trade-offs among major Navy appropriations that would achieve programmed procurement targets. We illustrate the organizational and operational challenges associated with even small trade-offs and also examine the increasingly common practice of competitive sourcing using private-sector risk criteria popularized in business literature.

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I. STUDY OBJECTIVES AND OUTLINE

Navy planners have identified the need to re-capitalize the fleet in preparation for a sustained war against global terrorism. Specifically, this requirement includes a dramatic increase in shipbuilding and aircraft procurement over the next decade. The challenge is that Navy total obligation authority (TOA) is not expected to increase over that same period, and may even decline under pressure from increasing non-discretionary spending in the federal budget. Thus, Navy leaders are considering various alternatives to finance new procurement. Financial efficiencies obtained through streamlining business processes may provide some resources. More likely, Navy programmers will need to weigh difficult trade-offs among the various appropriations and shift resources to procurement from areas such as military personnel, operations and maintenance, research, and construction. One consequence of this approach is that the Navy will outsource “non-core” capabilities funded by these latter appropriations. Considering the costs and risks associated with outsourcing entire functions, the re-capitalization financing decisions are of critical importance to Navy mission readiness.

A. OBJECTIVES

Although the fleet re-capitalization problem has many facets, this research has three specific concentration areas. The initial focus is to define in broad terms the nature and scope of potential budget trade-offs that achieve fleet re-capitalization goals within the framework of current Navy missions. Second, the analysis explores in greater detail a Marine Corps manpower rescission that illustrates the significant ramifications of even a relatively small budget cut. Finally, recognizing the inevitability of continued outsourcing in the Department of Defense (DoD), the study evaluates current outsourcing policy and initiatives using private-sector risk criteria popularized in the business literature.

These focus areas target Navy leaders and other stakeholders seeking to understand the factors constraining fleet re-capitalization and to appreciate the difficult financing decisions ahead. The study also outlines specific categories of strategic

outsourcing risk for consideration by all users of the Office of Management and Budget (OMB) circular A-76.

B. SOURCES OF DATA

The study references several sources of public data. Federal budget implications of entitlement spending trends are drawn from Congressional Budget Office (CBO) forecasts. Current editions of key planning documents provide the background and context for the Navy re-capitalization effort. Specific procurement goals for ships and aircraft are projected in the Highlights of the fiscal year 2004 Department of Navy (DoN) Budget. Program cost information and Navy TOA are taken from historical DON budget data for fiscal years 2000 through 2004. Finally, Marine Corps manpower rescission options are framed using data taken from two studies conducted by RAND for the U.S. Army and from DoD manpower statistics for fiscal year 2000.

C. ANALYTICAL METHODOLOGY

The analytical methods used in the research are ratio analysis and cost-benefit analysis. First, DoN spending forecasts in various categories are compared directly using relative cost ratios. In this way, we identify potential trade-offs that achieve procurement goals given constant top-line TOA. Next, these alternatives are evaluated using cost-benefit analysis in both the general case of fleet re-capitalization and the specific case of a Marine Corps manpower rescission. Finally, the study presents a more qualitative comparison of outsourcing practices in DoD with the strategic cost-benefit considerations common in the private sector.

D. LIMITATIONS

As indicated, fleet re-capitalization will drive and shape nearly all financial decisions in the Navy for several years. This study does not attempt to evaluate all of the innovative approaches to streamlining business processes and achieving financial efficiencies. For example, the study excludes potential cost avoidance from base realignment and closure (BRAC) and privatization. Instead, the study captures aggregate re-capitalization financing options in terms of major Navy spending categories and illustrates the impact of potential trade-offs using the specific example of a Marine Corps manpower rescission. The study does not include detailed case studies of particular

outsourcing decisions. Rather, we project the aggregate cost avoidance reasonably achievable from outsourcing and then frame the savings in terms of strategic risks using cost-benefit considerations from the private sector. In summary, the study provides a top line analysis to underscore the scope and importance of pending budget decisions.

E. OUTLINE

We begin our study in Chapter II with a more detailed introduction to the fleet re-capitalization challenge in the context of the global war on terrorism. We detail the budgetary dimensions of the problem and identify key stakeholders in this issue. Next in Chapter III we present the background and context of the issue. We outline the various phases of the Planning, Programming, Budgeting and Execution (PPBE) system, introduce key strategic planning documents, present the re-capitalization goals, justify the assumption of fixed top-line TOA, and introduce several budgetary tools available to Navy leadership.

Chapter IV presents our analysis of re-capitalization financing alternatives. We quantify the Navy re-capitalization goals and forecast major appropriations over the Future Years Defense Program (FYDP). We illustrate the impacts of procurement financing through a vertical cut to military personnel. We then contrast the impacts of financing through a horizontal cut to military personnel, operations and maintenance, and research and development. We conclude Chapter IV with an overview of Navy budget trade-offs and motivate later discussion of outsourcing initiatives.

Whereas Chapter IV provides an overarching view of the re-capitalization issue, Chapter V presents a more focused analysis of the implementation challenges arising from the proposed Navy budget trade-offs. In Chapter V we explore options to apply a small Marine Corps manpower rescission of 0.2%. The analysis summarizes the Marine Corps implementation of PPBE, summarizes the targeted appropriations, and presents three specific alternatives to achieve the required savings. We conclude Chapter V by illustrating the scope and breadth of even a small budget cut as an illustration of both the magnitude and criticality of the trade-offs presented in Chapter IV.

Outsourcing has been viewed as a partial solution to the re-capitalization financing dilemma. Given the necessity for cost reductions noted in Chapter IV and the real-world challenges illustrated in Chapter V, we present in Chapter VI a summary of DoD outsourcing initiatives. We present an overview of current DoD practice, a summary of outsourcing cost-benefit and risk considerations popularized in the business literature, and an analysis of DoD lessons learned from recent outsourcing experience.

Finally in Chapter VII we conclude with a summary of re-capitalization financing alternatives and review the business risks associated with outsourcing implementation in DoD.

II. INTRODUCTION

A. RECAPITALIZATION REQUIREMENT

The fleet re-capitalization challenge exists for several reasons. First, in the aftermath of terrorist attacks on September 11, 2001, the Navy experienced a sharp increase in operational tempo. The global war on terrorism requires forward presence, surge deployment capability and rapid exploitation of technological advantages. Although the aging fleet performed admirably throughout Operation Enduring Freedom and Operation Iraqi Freedom, platforms, crews and maintenance budgets were thinly stretched. Navy procurement priorities are to arrest average aircraft age at a reasonable threshold while enhancing and expanding surface and subsurface capabilities. Second, the non-discretionary portion of the federal budget is expected to grow considerably in the next decade with the first retirements among the “Baby Boomer” generation. This growth will squeeze discretionary spending of which defense is a considerable percentage. The Department of Defense (DoD) has adopted the pragmatic view that new capital asset procurement and the associated research and development should be financed within existing budget limits. Finally, the cost of recruiting, training and retaining a professional military and civilian workforce continues to represent a sizeable portion of the Navy budget. Although new technology has reduced manning requirements for some platforms, the logistics support for operational units remains a considerable component of the life-cycle cost. Thus, reducing military end strength will be an important element of the procurement financing plan. However, the risks associated with eliminating or outsourcing support functions must be acceptably quantified before making the required cuts.

B. BUDGETARY DIMENSIONS

The budgetary dimension of fleet re-capitalization is clear. The Navy must develop a methodology to measure the relative costs and benefits of disparate programs across several appropriations to determine the most efficient and effective way to finance additional procurement. The Planning, Programming, Budgeting, and Execution (PPBE) process provides a structured approach to this problem that captures the input of various

stakeholders. However, the results will only be as good as the performance measures selected to equate various capabilities. Specifically, Navy leaders must develop relationships that balance each funding category with procurement. For example, the projected re-capitalization goal can be equated in current dollars to a percentage of Navy end strength. But the decision to cut this end strength must be supported by some measure of mission capability that captures the trade-off between manpower and procurement. These are not easy decisions. In most cases, such overarching performance measures are not readily defined.

A second budgetary dimension of this problem is the challenge of quantifying cost avoidance achieved through outsourcing. Several high-visibility contracting irregularities during Operation Iraqi Freedom illustrate both the cost and performance risks associated with outsourcing. These risks are externalities that must be captured in the economic analyses of potential outsourcing targets. Further, some outsourcing decisions may merely represent a transfer of cost between accounts. For example, some argue that maintenance cost avoidance achieved through housing privatization is incurred as higher outlays for housing allowance. Outsourcing cost-benefit analyses must include all additional acquisition costs to fairly represent any savings available for additional procurement.

C. STAKEHOLDERS

The breadth of these issues illustrates that fleet re-capitalization is not just a Navy problem. There are many other stakeholders at various levels. Most importantly, the Navy has a central role in the new national military strategy that includes both homeland defense and deterrence of terrorism, along with the traditional roles of forward presence and war fighting. These missions require dominance of the littoral region in support of Marines, Special Forces and other combat units ashore, as well as control of the littoral airspace. New “sea basing” capability and improved air defense technology will allow sustained U.S. dominance of key sea lanes, but the tough decisions required to finance such future capability will be made by echelon II commanders who must cut existing Navy programs without sacrificing current mission readiness.

In this chapter we have framed the fleet re-capitalization challenge in the context of the global war on terrorism. We have identified the critical budget constraint to Navy TOA and have illustrated the budgetary dimensions of the problem. Finally, we have identified the various stakeholders in this issue. In the next chapter we will present the Navy re-capitalization goals in view of both the current strategic guidance and bureaucratic complexity of the Defense budgeting system. We will motivate the consideration of difficult budget trade-offs and discuss tools for implementing change.

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III. BACKGROUND AND CONTEXT

The fleet re-capitalization challenge can only be appreciated in the context of the complex political and bureaucratic processes that influence Defense spending. This section presents the scope of the issue within the framework of the federal budget process and provides a summary of several specific budgeting tools available to Navy leaders.

A. THE PPBE PROCESS

The purpose of the Planning, Programming, Budgeting, and Execution (PPBE) process is to allocate resources within the Department of Defense. The PPBE process was established in 2003 and evolved from the Planning, Programming, and Budgeting System (PPBS) first introduced into DoD in the early 1960's. The PPBS was a cyclic process consisting of three distinct but interrelated phases: planning, programming, and budgeting. These phases were basically sequential until 2001 when DoD began performing the programming and budgeting phases concurrently. (U.S. Army, 2003, p. 1)

PPBS provided the framework and tools for future decision-making as well as an opportunity to reexamine prior decisions in light of the present evolving threats and changing economic conditions. The PPBE process retained these same features but added more emphasis on the Department's execution of the budget authority provided by Congress. This was instituted to better evaluate whether funded programs are providing the expected benefits and to allow better resource allocation. These goals support the ultimate objective of the PPBE process, which is to provide Combatant Commanders with the best mix of forces, equipment, and support attainable within established fiscal constraints. (U.S. Army, 2003, p. 7)

DoD uses the PPBE process to determine priorities and allocate resources. In planning, determinations are made of the capabilities required to counter and defeat threats to national security, and the forces needed to provide those capabilities. In programming, these force needs are prioritized and resources allocated to best meet the needs within fiscal, manpower, and force structure constraints. In budgeting, the

components and the Office of the Secretary of Defense (OSD) scrub their programs to ensure efficient use of scarce budget authority. Finally, in the execution review, program output is assessed against planned performance to determine the best return on investment. The program, budget, and execution reviews occur concurrently. (U.S. Army, 2003, p.16)

The final activity in PPBE is the execution review, which occurs concurrently with the program and budget reviews. While the purpose of the program review is to prioritize the programs which best meet military strategy needs and the purpose of the budget review is to decide how much to spend on each of these programs, the purpose of the execution review is to assess what is received for the money spent, i.e., actual output versus planned performance. Performance metrics will measure program achievements and attainment of performance goals. Over time, these metrics will be analyzed to ascertain whether resources are appropriately allocated. (U.S. Army, 2003, p. 16)

B. PLANNING

Although the current defense transformation began in the late 20th century, the terrorist attacks of September 11, 2001 forced a fundamental re-thinking of U.S. defense strategy. Asymmetric threats from unconventional adversaries prompted a revision of several key planning documents including the National Security Strategy (NSS) and the Quadrennial Defense Review (QDR). Further, the pace and urgency of transformation intensified at all levels as the need for new capabilities and greater agility was realized.

The National Security Strategy is the President's vision for U.S. international strategy and policy. Published in September 2002, this document provided the framework for current defense planning efforts. Notable in this revision was the call for "innovation in the use of military forces" and the declaration that the United States "will, if necessary, act preemptively" to prevent hostile action by its adversaries. (US White House 15) The structure and capabilities of a blue-water Navy built to fight the Cold War were considered by many Navy leaders to be inconsistent with the agility, flexibility and power projection implied by this call to action.

The Department of Defense had anticipated the new strategic requirements of the NSS in the QDR Report published a year earlier. Prior to this revision, the QDR had called for a threat-based force capable of fighting two major theater wars, presumed to be Southwest and Northeast Asia, and delivering a decisive victory in one of the conflicts. The new vision was for a capabilities-based force engaged in a broader range of defense activities. Specifically, the plan called for defense of the homeland, deterrence of aggression in four key regions, simultaneous prosecution of two major combat operations, and capability to conduct at least one smaller-scale contingency operation. The report noted that this “1/4/2/1” defense strategy would require “immediately employable forces, long range precision strike capabilities … and rapidly deployable maneuver capabilities.” (US Department of Defense QDR 21, 2001)

Explicit discussion of the fundamental shift in forces, equipment and training implied by the NSS and QDR was framed as the Defense Transformation Planning Guidance (TPG) published in April 2003. A supplement to the Defense Planning Guidance, the TPG addressed the need for Services to meet the demands of the QDR by making the “difficult decision” of weighing near-term operational needs against investment in future capabilities. The TPG noted that limited resources would require challenging trade-offs, but that transformation could not be delayed in favor of currently planned programs and systems. (US Department of Defense TPG 4, 2003)

Navy planning responded to these changes with the publication of a new Sea Power 21 vision in September 2002. Intended to guide how the Navy would “organize, integrate, and transform”, Sea Power 21 included several subordinate programs designed to focus planning and programming effort on maintaining current readiness, investing in future readiness and streamlining business processes. This final element, embodied as Sea Enterprise, was characterized as a zero-based review of all Navy business processes to identify core capabilities, eliminate waste and maximize resource utilization. Shaped by successive annual CNO guidance reports, Sea Enterprise seeks to “improve productivity and find the resources to create the Navy of the future” by challenging all assumptions and divesting of non-core functions through outsourcing. (Clark, SP21, 2002)

C. PROGRAMMING

In response to these planning changes, Navy leadership developed a new 30-year global concept of operations. Although the top priority remains prosecution of the global war on terror, the plan emphasizes the need for re-capitalization and transformation with specific focus on increasing and modernizing both fleet and naval air assets. The new force structure plan calls for increasing the fleet battle force from its current level of 292 ships in 2004 to 375 ships by fiscal year (FY) 22. (Cariello) In addition to surface combatants, this force will include submarines, sealift, expeditionary ships, mine clearing, and other support vessels. The plan also establishes the goal of reducing overall average aircraft age to 12 years. Currently, the average ages of tactical air, helicopter and support airframes are 14, 21 and 23 years, respectively. At current procurement levels of 100 aircraft per year in FY05 and FY06, these averages will continue to grow. Increasing aircraft procurement by 80% to 180 aircraft per year over the future years defense plan (FYDP) would arrest average aircraft age at only 18 years. (Cariello, 2004)

The challenge for programmers is that these aggressive re-capitalization goals require dramatic increases in procurement spending over the FYDP. Achieving the fleet re-capitalization goal of 375 ships by FY22 will require an average build rate of approximately 11.5 ships per year. This represents spending roughly \$14B per year for new construction and \$2B per year for overhaul and conversion over the FYDP. Likewise, achieving even the target of 18 years average aircraft age will require a fourfold increase in aircraft procurement spending to over \$20B per year by FY09. (Cariello) Whereas *all* procurement has recently accounted for roughly 20-25% of Navy total obligation authority (US Department of Navy), these two procurement initiatives *alone* will account for over a third of the entire Navy TOA by FY07.

Navy programmers are working on the assumption that due to limitations of discretionary federal spending, Navy TOA will not increase over the FYDP. Thus, the Sea Enterprise Board of Directors is aggressively searching for cost avoidance initiatives that will provide sources of financing for increased ship and aircraft procurement. The board is creating ideas that will improve productivity and reduce overall overhead cost. The FY04 FYDP *already* reflects \$38B in savings validated by the Sea Enterprise team.

An additional \$12B in new savings initiatives is under review. (Clark CNO Guidance 4) Unfortunately, even this impressive early success of Sea Enterprise falls well short of the cost avoidance required to finance Navy re-capitalization goals. Therefore, the CNO is personally carrying the message forward to the field level by visiting all Echelon II commands throughout 2004 to identify enterprise-wide efficiencies. He is carefully scrutinizing all processes and products and questioning all cost assumptions. The reality, however, is that further cost avoidance will require even more difficult program trade-offs than those already considered.

D. APPROPRIATION AND BUDGET EXECUTION

Congress establishes Navy budget authority through the Defense Appropriation Act following a lengthy examination of the defense establishment and the President's budget request. Congress utilizes the Appropriations Act to control the level of expenditures in DoD. Deliberations begin in February upon receipt of the President's Budget, which includes the President's plan for total obligation authority and expenditures in DoD. In addition to the spending levels in the Appropriation Act, Congress must also approve the *purposes* for which funds are requested through a process called authorization. Armed Services Committees and Appropriation Committees in both the House and the Senate principally conduct authorization and appropriation reviews. Appropriations must be enacted as laws by signature of the President, but do not represent cash actually set aside in the U.S. Treasury. Rather, the Act merely places limitations on amounts that agencies may obligate during a specific timeframe. (U.S. Army, 2003, p.16)

DoN has a total of five major appropriation accounts that fund both Navy and Marine Corps activities. These appropriations include Operations and Maintenance (O&M), Military Personnel (MilPers), Research, Development, Testing, and Evaluation (RDT&E), Procurement, and Military Construction (MILCON). As evident from Appendix B, the majority of the funds go to O&M, Military Personnel, and Procurement. (McCaffery and Jones, p. 273)

DoD budget execution begins with the approval of Congress to spend appropriations through an allotment process. During the allotment review, DoD must

show how it plans to spend approved appropriations, by quarter, month, or fiscal year depending on the type of appropriation. After allotment approval is received from OMB and the Treasury, DoD begins the process of separating the DoD budget and distributing portions to the military departments, Services, and other DoD agencies. After they have received their allotment authority, these resource claimants begin to incur obligations and then liquidate their obligations through the outlay of funds. At the midpoint of the spending year, the military departments and services typically conduct a midyear review to facilitate shifting of money to areas of highest need. By the end of the fiscal year, all DoD accounts must be reconciled with appropriations before they are closed. (McCaffery and Jones, p. 102)

Figure 1 summarizes the PPBE system including key players and products. (Candreva, p.21)

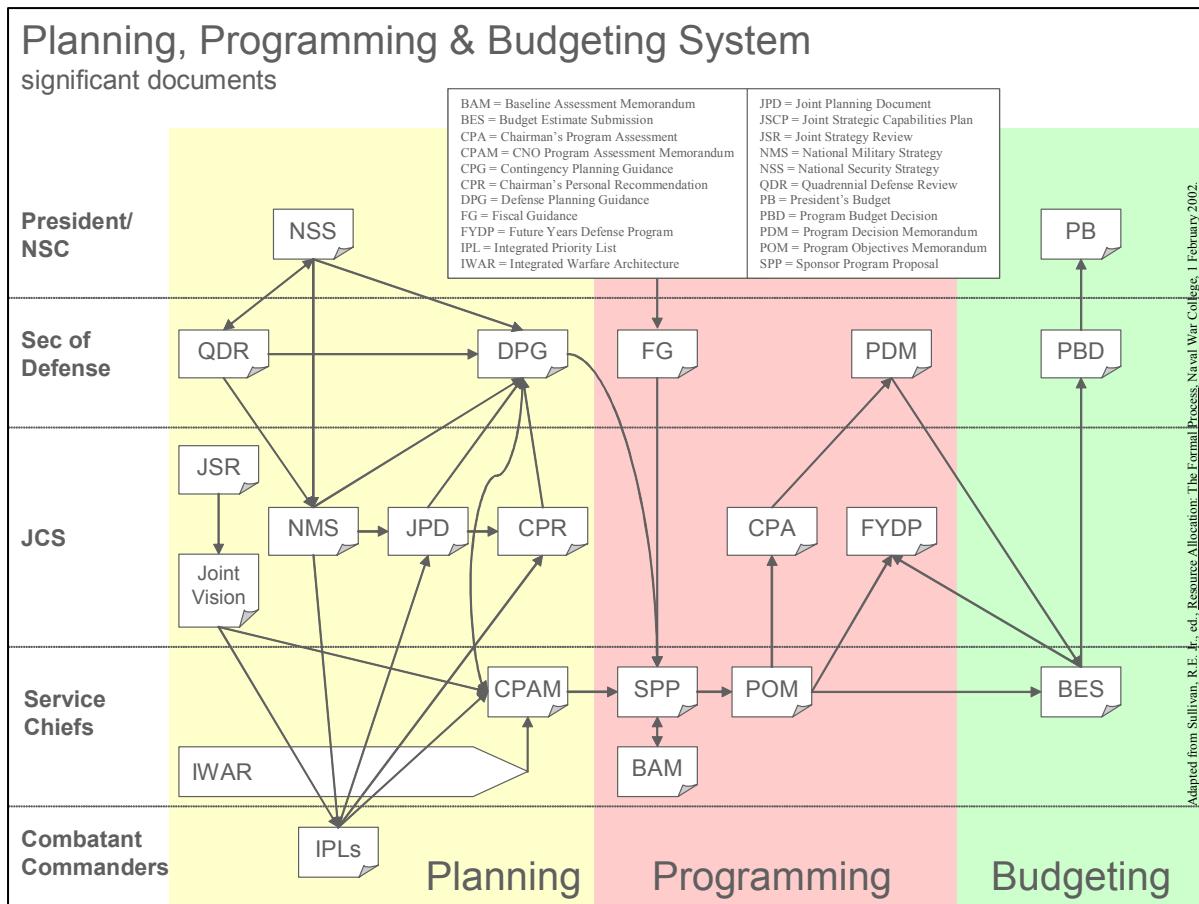


Figure 1. PPBE System

E. BUDGET CONSTRAINTS

The need for difficult trade-offs in defense planning is driven in large part by a constraint imposed on defense and other discretionary spending by rapidly increasing entitlement spending in the federal budget. Coinciding with the need for Navy recapitalization is the pending retirement of many in the Baby Boomer generation who will become eligible to collect Social Security benefits. The assumption of fixed TOA in Navy programming is derived in part from the belief that Congress will be unable to appropriate more for defense and still meet commitments to Social Security beneficiaries without causing unacceptably large budget deficits.

Although many had thought that concern over Federal entitlement spending was premature, recent comments by Federal Reserve Chairman Alan Greenspan brought the issue into the political mainstream. Citing a “dramatic demographic change,” he explained that unless benefits are reduced or delayed, Federal entitlement programs will create “demands we almost surely will be unable to meet.” (Chen) Many budget analysts had already concluded that around 2025 outlays for entitlements would exceed income credited to the trust funds. But the Congressional Budget Office diagram in Appendix A illustrates that outlays for Social Security and Medicare will actually exceed revenues as early as 2011. The cause of this discrepancy is that surpluses in the trust funds have been used as a source of credit for government borrowing and must be repaid to avoid cash deficits. (Clifton, 2004)

Given the likelihood of fixed top line Navy budget authority, another constraint on Navy procurement is the competing need to fund Navy readiness accounts. The increased operational tempo required by the global war on terror caused an increase in FY04 Operations and Maintenance (O&M) spending of more than 30% over the FY00 baseline. (US Department of Navy) Vice Admiral Michael Mullen, DCNO for Resources, Requirements and Assessments, explained in January 2003 that the O&M budget decisions were appropriate to “bring our readiness accounts in line,” but strongly cautioned that if the Navy fails “to find efficiencies and harvest savings in all of our programs, we run a very real risk of failing to reach the long-term [modernization] goal.”

(Keeter) Clearly, senior Navy leadership understands the funding challenge that lies ahead and the nature of the budget constraints.

F. RESCISSIONS

In recent years, Congress has addressed the shortfall in O&M budget authority using supplemental appropriations. These appropriations occur separately from the annual Appropriation Act generated by review of the President's budget and correct for unforeseen or emergency requirements that were omitted from the annual appropriation. The most notable was a \$67 billion supplemental appropriations bill recently passed by Congress and signed by the President to help pay for the Global War on Terrorism and, more specifically, for current operations in Iraq and Afghanistan. Although the Navy has become somewhat dependant on supplemental appropriations to sustain current operations, the bills often contain language requiring rescissions in other accounts to help pay for the new budget authority.

The Congressional Budget and Impoundment Control Act of 1974 created the rescission process. The main purpose of this act was to place a check and balance between the power of Congress and the President's ability to impound appropriated funds. Rescissions have allowed for changes in appropriations based on changing national priorities. The rescissions are enacted to offset new spending programs or to shift spending to higher priority items.

Under the provisions of the 1974 act, the President can propose to rescind spending authority provided by the Congress. The Congress has 45 days (continuous session) to approve the President's request, but it does not have to act on his proposals. During the 45-day period, the President can withhold the funds proposed for rescission. If Congress fails to act within the 45-day period, the funds must be made available for obligation. (U.S. Congress, 1999)

The Congress can also initiate rescissions. Between 1990 and 1999, rescissions initiated by the Congress accounted for more than 60 percent of all rescinded budget authority and resulting first-year outlays. Rescission proposals generally fall into two categories. Most enacted rescissions are included in supplemental appropriation acts and

are explicitly intended to offset the spending contained in those acts. The other general type of rescission is enacted in regular appropriation acts for a variety of purposes. Proposals have been introduced to Congress that would revise the rescission process to provide the President greater control over spending cuts; however, these proposals are not addressed in this study. Later, we explore a Marine Corps manpower rescission to illustrate the difficult decisions required to implement even a relatively small budget cut.

G. REPROGRAMMING AND TRANSFERS

Navy budgeters also have some flexibility in the execution of appropriated funds. Reprogramming is the transfer of funds between programs of an appropriation that shifts funds from the original purpose for which Congress justified them. This activity is allowed only if the amount of the reprogramming is below threshold reprogramming (BTR). For example, current thresholds for military personnel accounts allow an increase of up to \$10 million and no limit on decreases. The BTR cannot exceed any established thresholds by Congress and may not decrease appropriations fenced for Congressional special interest items. In addition, no BTR may exceed the greater of the above thresholds or 20 percent, whichever is less, of the appropriated level for each procurement line item or RDT&E program element. (Zakheim, 2003)

In this chapter we have presented the Navy re-capitalization goals in the context of the governing strategic guidance and the complex bureaucracy of the Defense budgeting system. We have motivated and justified the assumption of fixed top-line Navy TOA. Next we will forecast the budgetary impact of this program over the FYDP and present potential trade-offs among the major appropriations that would produce sufficient procurement financing for the new fleet.

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IV. RE-CAPITALIZATION FINANCING

In this section we return to the re-capitalization goals outlined above and consider them within the constraint of constant Navy TOA over the FYDP. Data for this section, including top line budget figures for major spending categories, is drawn from the Department of Navy budgets for fiscal years 2000-2004 and presented in Appendices B-F. Also included are current procurement projections through FY09 for shipbuilding and conversion as well as aircraft construction and remanufacturing. Note that the unit for all budget figures is millions of current-year dollars.

To identify potential budget trade-offs to finance the level of procurement required to achieve Navy re-capitalization goals, we first identify applicable spending categories in the Navy budget that can be targeted for reduction. Next, we state the scope and estimate the cost of annual re-capitalization procurement targets through FY09. Using historical cost averages and spending ratios from FY00-FY04, we then forecast budget estimates through FY09 for two different financing assumptions that achieve Navy re-capitalization goals. The first is a vertical cut in the military personnel appropriation to finance additional procurement. The second is a horizontal cut across MILPERS, O&M, and RDT&E. We then consider the cost-benefit of these financing alternatives and briefly note the impact of outsourcing. For analytical simplicity, we use top line budget figures for the major spending categories in the Navy budget.

A. SPENDING CATEGORIES, APPENDIX B

The FY04 total obligation authority is shown in Appendix B. Seven major spending categories are listed. Since the combined contribution of the MILCON, Family Housing, and Other line items is only 3.3% of Navy TOA, we exclude these from further analysis and consider only MILPERS, O&M, and RDT&E as potential spending categories to trade-off with procurement.

B. RE-CAPITALIZATION GOALS AND COST, APPENDICES C-E

The scope and cost of Navy re-capitalization goals are presented in Appendices C and D. Appendix C lists quantities for new ship construction and conversion for the

period FY03 through FY09. Actual cost data is provided for FY03-FY04. From this information we develop an average cost estimate of \$1.3B for each new ship constructed and \$350M for each conversion. These estimates are then used to project SCN cost forward through FY09. The cost forecasts do not include inflation. However, inflation would be offset by reduction of the average unit cost due to economic order quantity or other efficiencies in the procurement process.

Similarly, Appendix D lists quantities for aircraft procurement and remanufacturing for the period FY03 through FY09. Again, actual cost data is provided for FY03-FY04. From this information we develop an average cost estimate of \$90M for each aircraft constructed or remanufactured. This estimate is used to project aircraft procurement cost forward through FY09. As before, the cost forecasts include neither inflation nor future cost reduction from procurement efficiencies.

The chart in Appendix E summarizes the procurement spending forecasts and illustrates the dramatic increase in cost associated with currently programmed targets. From the FY04 level of just over \$20B, ship and aircraft procurement cost will grow to nearly \$50B by FY09. This \$30B increase must be financed by cuts in other spending categories.

C. BUDGET FORECASTS, APPENDICES F-J

Having projected the cost of Navy re-capitalization, we next develop Navy budget forecasts in terms of the four major spending categories. These forecasts identify possible trade-offs to finance additional procurement. Two methodologies are used. The first is a vertical cut in MILPERS to offset additional procurement. This approach recognizes that fleet modernization requires stable RDT&E spending to sustain a technological advantage. It also recognizes that the global war on terror will require stable O&M spending to exercise the fleet, project power and engage in low intensity regional contingencies. The second methodology is horizontal cut of RDT&E, O&M and MILPERS. This approach recognizes that a deep cut in manpower is detrimental to both current and future readiness. A significant reduction in manpower coupled with moderate cuts in O&M and RDT&E is a more traditional and conservative approach.

Appendix F provides Navy budget data for FY00-FY04. Also shown are Navy end strength and fleet size in these same years. Annual unit costs for both the operations and maintenance and manpower accounts are developed using ratio analysis. Using end strength as the base for manpower, the resulting metric is cost per service member. Using fleet size as a proxy for the O&M base, the resulting metric is O&M cost per ship. These annual cost ratios are used to develop overall unit cost estimates of \$54,000 in MILPERS cost per service member and \$100M in O&M cost per ship. These estimates will be helpful in evaluating the cost-benefit of various procurement financing alternatives. The exhibit also shows the relative contributions of RDT&E, O&M and MILPERS to total annual non-procurement spending. These percentages represent the historical mix of spending in these three categories. The percentages selected for forecasting are 16% for RDT&E, 44% for O&M, and 41% for MILPERS. These figures will be used later to apply a horizontal budget cut to these categories while holding TOA constant. Maintaining these ratios ensures “fair-share” reduction of non-procurement accounts.

D. VERTICAL BUDGET CUT TO MILPERS

A budget forecast based on cutting MILPERS to fund additional procurement is shown as Appendix G. The uncertainty of forecasting requires several simplifying assumptions consistent with the budgeting methodology. In this case, two general assumptions are that inflation can be ignored and that total TOA for the four spending categories of interest will remain constant at the 2004 level of \$116.7B. Additional assumptions are specific to various spending categories.

Since the sum of forecast ship and aircraft re-capitalization does not comprise all Navy procurement, an assumption must be made regarding the future level of other procurement programs such as those for communication, weapons and surveillance systems. In 2004, ship and aircraft procurement represented 68% of overall Navy procurement. As re-capitalization spending grows through FY09, this percentage is assumed to increase to 75% in FY05-FY07 and 80% in FY08-FY09. These percentages recognize the *relative* increase in ship and aircraft procurement with respect to other

programs, but acknowledge the continued need for other procurement to support, sustain and integrate the new weapons platforms.

Similarly, RDT&E spending must increase in support of new procurement. The FY00-FY04 budget data reveal that current year RDT&E spending averages 38% of the procurement cost to be incurred two years in the future. For example, FY02 RDT&E is 38% of FY04 procurement. Using this relationship, RDT&E spending is forecast as a function of future procurement through FY06, and capped at \$20B in FY07-FY09 in recognition that efficiency is gained as new platforms move into low-rate initial production.

Finally, O&M spending is held constant at the FY02 level of \$32.4B for this forecast. O&M spiked in FY03 due to Operations Iraqi Freedom and Enduring Freedom. FY04 O&M reflects reconstitution of combat units and rotation of occupation and support forces. FY02 represents a reasonable estimate of the steady-state O&M requirement to sustain the war on terror and allows for realization of efficiencies over FY04 spending levels.

Given these assumptions, MILPERS suffers a sharp decline in this budget forecast. The impact of the required MILPERS budget cut can be measured in end strength using the manpower unit cost found above. Note that end strength declines at an increasing rate over this period since programmed procurement targets are back-loaded with a sudden peak in FY09. Forecast relationships among the four spending categories are shown graphically in Appendix H.

E. HORIZONTAL BUDGET CUT TO MILPERS, O&M, RDT&E

An alternate budget solution is presented as Appendix I. Rather than target a single spending category for cost reduction, this forecast applies a horizontal cut across RDT&E, O&M and MILPERS to finance additional procurement. The general assumptions for this forecast are the same as for the vertical cut forecast above. Specifically, inflation is ignored and TOA for the four spending categories of interest is assumed to remain fixed at \$116.7B. The procurement spending figures are also forecast in the same way as above.

Assumptions for the remaining spending categories in this forecast differ significantly from the previous example. Rather than allow for growth in some non-procurement spending categories, this approach applies a “fair-share” reduction across all categories. This reduction is implemented by maintaining the relative spending ratios among the three non-procurement spending categories as their sum is reduced to achieve the allowed TOA. Specifically, RDT&E, O&M, and MILPERS were found, on average, to contribute 14%, 41% and 44%, respectively, of non-procurement spending from FY00-FY04. This specific mix of spending is maintained throughout the forecast as procurement spending increases and all other categories decline.

Given this new set of assumptions, the impact on MILPERS spending is significantly mitigated as shown graphically in Appendix J. However, new risk is introduced by the reduction of both RDT&E and O&M. RDT&E spending has direct influence on procurement programs. Whereas RDT&E has historically been 38% of the procurement cost two years in the future, this forecast illustrates that RDT&E would fall to less than 20% of programmed procurement by FY07. For example, the RDT&E forecast of \$12B in FY07 is only 19.2% of the procurement forecast for FY09. Similarly, O&M spending is required to exercise and utilize any new weapons platforms. The historical O&M unit cost of \$100M per ship allows estimation of the fleet that could be supported by forecast O&M spending. The paradox of the horizontal cut to finance procurement is that reduction of O&M allows construction of a fleet that the Navy could not afford to operate. For example, O&M spending forecast in FY09 supports a fleet of only about 240 ships when the inventory would exceed 310.

F. INTERNAL TRADE-OFFS

In the absence of significant budget relief from Congress, we have shown that achieving the current re-capitalization goals will require broad participation and significant sacrifice by Navy stakeholders. As VADM Mullen suggests, one approach is to harvest savings identified by Sea Enterprise to fund new procurement. The challenge with this approach is that unless entire functions are terminated or competing programs outright cancelled, current savings are only recognized as the present value of future cost

avoidance. There is unlikely to be an immediate savings that can be programmed for procurement in the current Program Objectives Memorandum (POM).

For example, VADM Mullen points to the decommissioning of F-14 squadrons, S-3 squadrons and the remaining Spruance-class destroyers as a source of procurement financing. He notes that the manpower, training and support infrastructure associated with these platforms can be eliminated. (Keeter) However, decommissioning is a planned component of the life-cycle cost of a weapons system and implies the requirement for procurement of a replacement system. It does not, therefore, represent a savings that can be used for *additional* new procurement. Further, associated manpower and training infrastructure can only be eliminated if the new platforms require *less* of these resources. If not, the new procurement must capture the life-cycle cost of personnel retraining and support infrastructure realignment. Finally, any actual infrastructure reduction requires closure and remediation cost in the budget, which again competes with procurement.

G. A NOTE ON OUTSOURCING, APPENDIX K

The two budget forecasts above illustrate the severity of the re-capitalization financing problem in terms of impact to the other DoN spending categories. Although later sections will explore competitive sourcing in detail, note here that a key assumption in both forecasts is that none of the programs and functions targeted for spending reductions would be outsourced. Instead, they would be outright eliminated. But many support functions targeted by Sea Enterprise are vital to current readiness and could not be outright eliminated. Instead, they will be considered for outsourcing. Examples of such non-core functions include base maintenance, galley services, barracks operations and non-tactical vehicle maintenance.

Although some Navy leaders point to outsourcing as the solution to fleet re-capitalization, allowance for outsourcing in the above examples would actually require a threefold *increase* in overall non-procurement budget cuts since data suggest that outsourcing reduces original program cost by only 30%. (US Office of Management and Budget) Since the above forecasts assume avoidance of *all* original program cost, outsourcing would re-introduce the remaining 70% of original program cost to the

analysis. This cost would still need to be budgeted in a non-procurement account for contract payments if the function were outsourced rather than eliminated.

Appendix K illustrates this limitation of outsourcing in dollar terms. The total annual savings from all Navy and Marine Corps outsourcing initiatives is expected to reach \$1.7B in FY05. Although admirable, this represents only 1.5% of Navy TOA forecast for that year in the four largest spending categories. Recall from the procurement cost growth chart in Appendix E that procurement spending is expected to increase by nearly \$30B by FY09. Although helpful, cost reductions from outsourcing alone are insufficient to finance re-capitalization.

H. RE-CAPITALIZATION FINANCING CONCLUSIONS

Defense planning documents call for a modern agile force with broadened operational capability to fight the war on terror. Navy planners have translated this vision into a plan to re-capitalize the battle fleet and naval air forces over the next two decades. Subsequently, Navy programmers have outlined the procurement milestones necessary to meet the goals established by the plan. Anticipating no significant increase in Navy TOA, the Sea Enterprise team is searching for internal efficiencies that may help finance additional procurement. However, the budget forecasts in this section suggest that the re-capitalization milestones are unrealistic unless the Navy is prepared to suffer unprecedented cuts in competing programs.

If Navy TOA indeed remains capped near its current level, the internal trade-offs required to finance the desired fleet would cripple the Navy's ability to operate. For example, if Navy leaders cut MILPERS to finance procurement, then overall end strength must be reduced to 40% of the current level by 2008 and just 5% of the current level by 2009. If they choose a broader cut across not only MILPERS but also O&M and RDT&E, then overall end strength must still be reduced to roughly 65% of the current level by 2009 to sustain O&M spending at a rate that would support a fleet on only about 240 ships. Further, RDT&E spending in this scenario would probably be insufficient to sustain modernization at the required rate to achieve the re-capitalization goal by FY22.

The section also suggests that outsourcing alone is not a viable solution to the re-capitalization financing problem. Although the savings achieved through outsourcing are impressive, they currently amount to only about 1.5% of Navy TOA. Such marginal savings will not significantly mitigate the re-capitalization budget dilemma. In fact, this study frames the budget problem with the assumption that non-procurement functions and programs will be eliminated rather than outsourced. If a capability is outsourced rather than eliminated, then fully 70% of the original program cost is retained.

In this chapter we have estimated and forecast the cost of programmed fleet re-capitalization and have quantified potential budget trade-offs that could finance the effort. We have concluded that planned procurement will require crippling cuts in competing appropriations and that outsourcing will offer only limited financial relief. In the next chapter we consider an alternative solution. The Sea Enterprise team is studying opportunities to streamline current operations and capture savings for re-capitalization. We explore this approach by introducing the scenario of a small rescission to Marine Corps manpower and then trace the practical ramifications of the cut. Our analysis will reveal that even very modest cuts to current appropriations have far-reaching ramifications that challenge our way of thinking about national defense.

V. MARINE CORPS MANPOWER RESCISSION

The previous section projected to the gravity of the re-capitalization budget dilemma and suggested that goals will be achieved only by close scrutiny of every non-procurement program for substantial savings. To cast this monumental effort in a more manageable framework, we now turn to a specific example in which the Marine Corps faces a requirement to execute a relatively small rescission in manpower funding. The following analysis highlights the Marine Corps implementation of PPBE and the breadth of options that could be considered to execute the mandated cut. This section provides a rich example of the business analysis that must occur in every arena if the Navy is to approach re-capitalization targets. This section draws data from DoN budget estimates for fiscal years 2004 and 2005 as well as two studies conducted by RAND for the U.S. Army.

A. BASIS FOR RESCISSION

The scenario we are presenting is a result of Congressional action to reduce DoD appropriations by \$1.8 billion using "across the board" reductions. In the scenario, a \$67 billion supplemental appropriations bill was recently passed by congress and signed by the President to help pay for the continuing Global War on Terrorism as well as current operations in Iraq and Afghanistan. Within the supplemental appropriations bill, Congress has directed several government agencies, including DoD, to report back with recommended figures for rescission by appropriation. DoD split the \$1.8 billion using a "fair-share" percentage of the total budget for each service. The services continued with the equal distribution of cuts among their appropriations, and the Military Personnel Marine Corps (MPMC) "fair-share" is \$25 million.

To frame the issue of cutting \$25 million from the MPMC budget, this section will explore the Marine Corps implementation of the PPBE process, the flow of funds to MPMC, and options the Marine Corps can take. Timing of the rescission is at a critical stage in the execution of current fiscal year appropriations. The rescission requirement

was announced toward the end of March leaving very little time to make effective changes without causing major disruptions that could impact Marine Corps operations.

B. MARINE CORPS PLANNING

Marine Corps planning is strongly influenced by two naval strategy documents: "Sea Power 21" and "Marine Corps Strategy 21." Several operational concepts have evolved from this strategic foundation including Operational Maneuver From the Sea (OMFTS), Ship to Objective Maneuver (STOM) and Sea Basing. Guided by these concepts, the Commandant of the Marine Corps (CMC) develops the Commandant's Planning Guidance (CPG) that provides overall strategic direction for the Marine Corps. The CPG is the basis for developing the Marine Corps Master Plan (MCMP) that provides long-range concepts, capabilities, and goals considered essential to accomplish the Marine Corps mission 20-30 years into the future. It also provides mid-range direction (2-10 years out) for developing programs and budgets.

The MCMP articulates the Marine Corps operational requirements in the areas of doctrine, organization, training and education, equipment, and facilities and support. This plan directly links operational planning to programming for new equipment and weapon systems initiatives. The MCMP guides the programming and budgeting of the PPBE in order to achieve the forces and capabilities required by the Fleet Marine Forces. (Sullivan, 2002, p.126)

The Marine Corps uses the Combat Development Process (CDP) to determine battlefield requirements and provide the resources necessary to produce combat ready Marine Air-Ground Task Forces (MAGTFs). A key component of the CDP is the Concept Based Requirements System (CBRS). The CBRS develops operational, functional, and tactical concepts that lead to the development of combat capabilities. It employs a planned approach that compares current doctrine, tactics, techniques, procedures, equipment, and support to national policy and strategy, and projections of future threats and technological advances. In addition to the CPG and the MCMP, guidance for combat development comes from various DoD documents such as the National Military Strategy, Joint Vision, and Defense Planning Guidance. During each planning, programming, budgeting and execution cycle, this planning effort is distilled

into specific programming guidance that is used to develop the current program objectives memorandum (POM). The general process and relationships among the Marine Corps planning activities is shown in Figure 2 below. (Sullivan, 2002, p. 126)

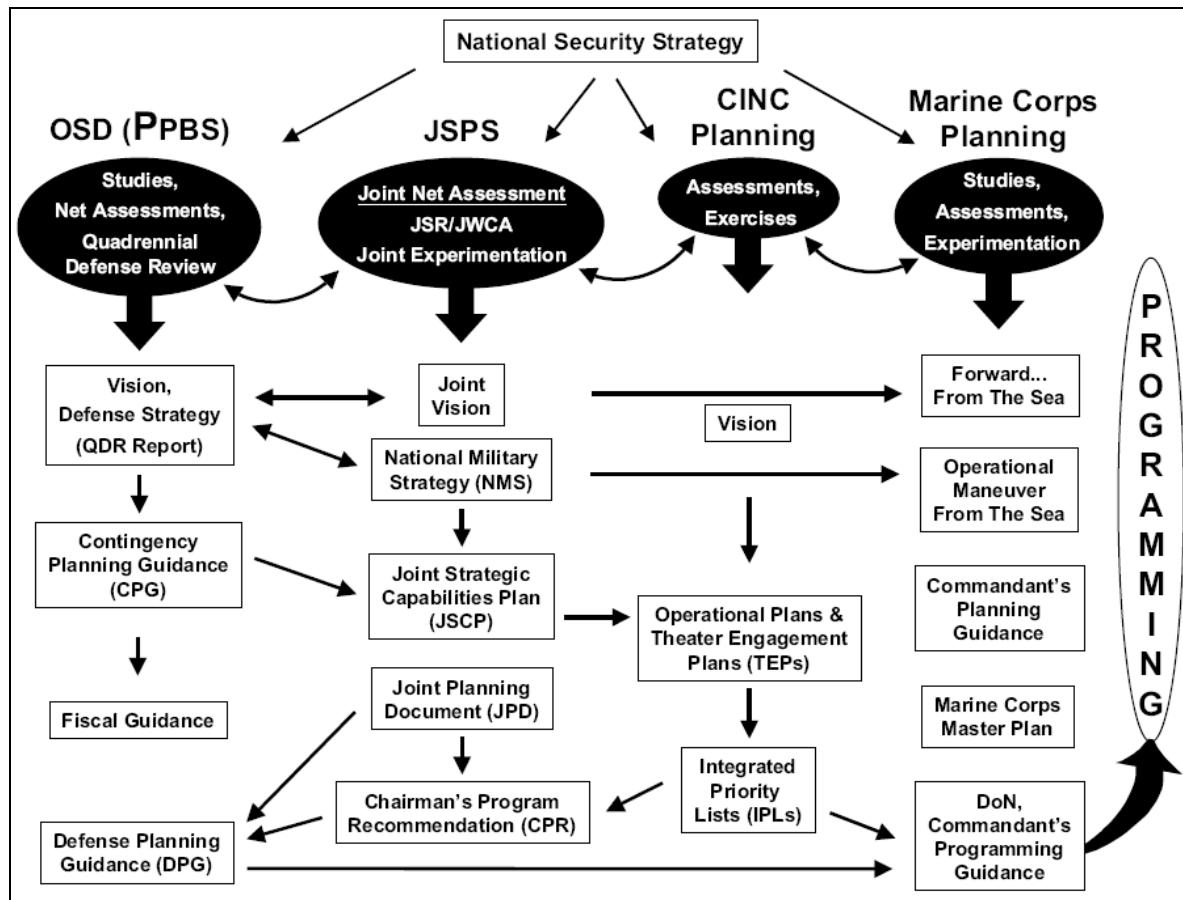


Figure 2. Marine Corps Planning Activities

C. MARINE CORPS PROGRAMMING

The unique status of the Marine Corps as one of two services within one military department is significant in shaping the Marine Corps resource allocation process. Since the Marine Corps POM is incorporated directly into the DoN POM, the Marine Corps resource allocation process is closely tied to that of the Navy. The Navy is given a Total Obligation Authority (TOA) or “top line” in the Secretary of Defense’s (SecDef) fiscal guidance that is then allocated between the Navy and the Marine Corps. The Marine Corps receives approximately 14 percent of the Navy's TOA. This percentage of the

Navy's TOA is called "green dollars" and is left up to the Marine Corps to allocate for its programs. An additional 6 percent of Navy TOA supports Marine aviation and other amphibious programs. The effect of these split responsibilities is that the Marine Corps programming decisions are constantly being made in two different, interactive processes. In the end, the Secretary of the Navy (SecNav) submits one consolidated POM to the Secretary of Defense. (Sullivan, 2002, p. 128)

Once the Marine Corps TOA is determined, the Deputy Commandant for Programs and Resources determines the core funding level. This identifies programs that do not require re-evaluation during each POM cycle, such as *manpower costs*, stable investments, and other "cost-of-doing-business" programs. The core programs are similar to entitlement/non-discretionary funding identified in the President's Budget. All other programs are considered discretionary and are categorized as "above core." Once the core is established and top-down guidance is provided, a series of programming forums assess new initiatives and refine recommendations. At the front end of this progression, the Program Evaluation Groups (PEGs) begin assessing the benefit of above-core initiatives and issues. There are six PEGs, five of which are organized by appropriation categories: Manpower (Personnel), Operations and Maintenance, Investment (Research & Development and Procurement), Family Housing, and Military Construction. (Sullivan, 2002, p. 127)

The PEGs collect program initiatives from the operational forces, the Marine Corps Warfighting Lab, and other organizations, and then evaluate these initiatives against prioritized requirements lists generated by the Concept-Based Requirements System (CBRS). The PEGs do not consider fiscal constraints. They consider the full range of initiatives and prioritize them in terms of benefit to the overall mission independent of cost. Each of the PEGs forwards a prioritized list of programs (specific to their appropriation category) to the POM Working Group (PWG). The PWG consolidates, assesses, and prioritizes the recommendations from the PEGs. Unlike the PEGs, the PWG must consider the financial impact and produce a recommended program that is within the Marine Corps TOA. The PWG forwards its recommendations to the Marine Corps Program Review Group (PRG).

The PRG reviews program issues identified by the PWG and resolves all but the major issues. Once the PRG has ensured that the program is balanced, it forwards the recommended program to the Marine Requirements Oversight Council (MROC) that is chaired by the Assistant Commandant. Once approved, the MROC briefs the program to the Commandant, and with his approval, the Marine Corps POM is delivered to SecNav for approval and inclusion in the DoN POM. (Sullivan, 2002, p. 127)

As Sullivan points out, the process described above functions to translate the broader choices made during the planning phase into detailed packages of capability objectives that are balanced and fiscally achievable. The Marine Corps programming process is summarized in Figure 3 below. (Sullivan, 2002, p. 128)

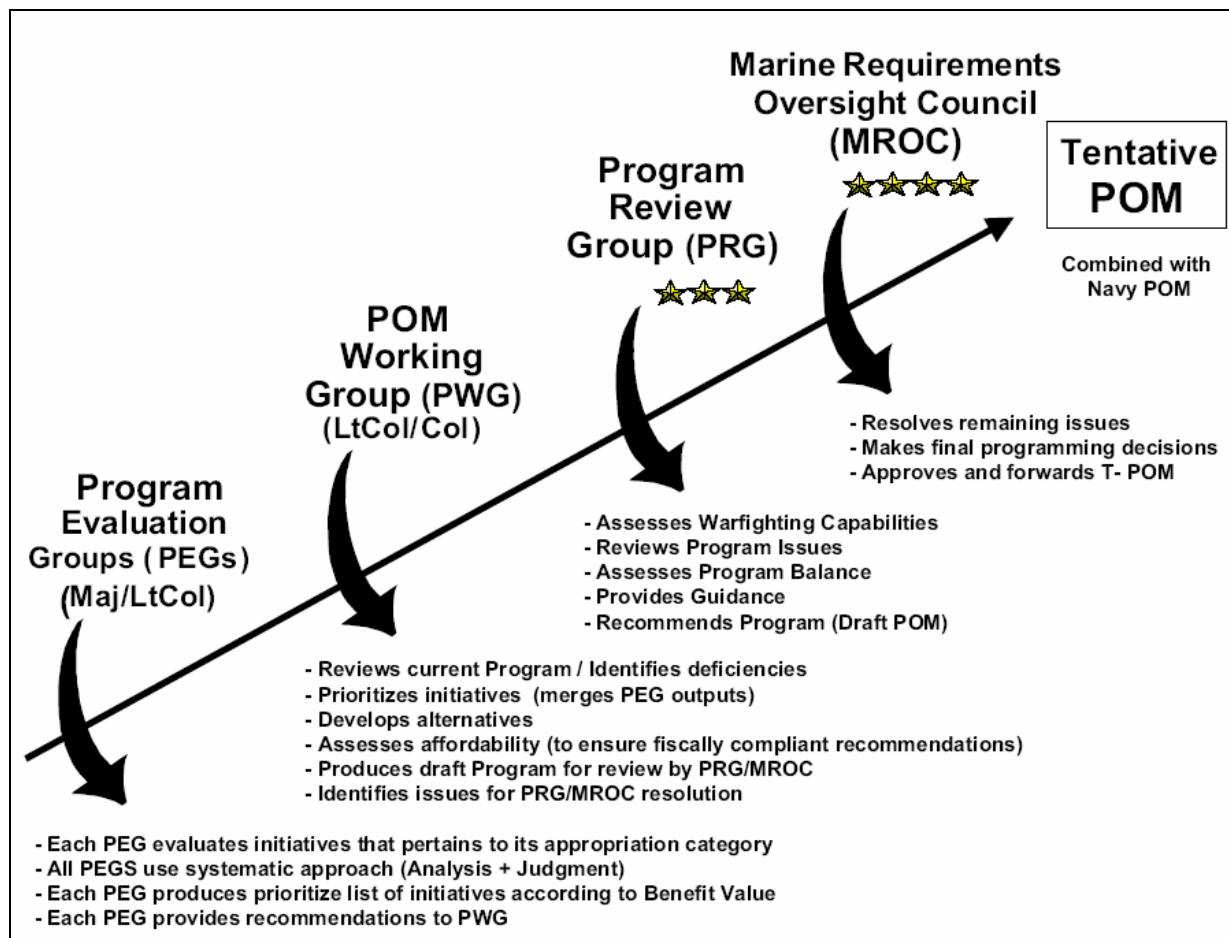


Figure 3. Marine Corps Programming Process

D. MARINE CORPS BUDGETING

The Navy Budget Office, officially titled Fiscal Management and Budget (FMB), is the central budget office of the DoN. It is responsible for preparing both the Navy and Marine Corps budgets. (McCaffery and Jones, p. 248) Some of the duties performed by FMB include: (1) Establishment of the general principles, policies, and procedures that control the preparation, presentation, and administration of the DoN budget; (2) Establishment of the appropriation structure for preparation and justification of the budget; (3) Supervision of the analysis and review of DoN budget estimates, and submission and negotiation of the budget with the SecDef, the Office of Management and Budget (OMB), and Congress; (4) Supervision of any reprogramming of funds by DoD or Congress; (5) Principle point of contact for outside agencies and other military department budget offices in all DoN budgetary matters. (McCaffery and Jones, p. 249)

FMB1 is responsible for reviewing, recommending, and revising estimates for the MilPers and O&M appropriations, and other funds of the Navy and Marine Corps. For the Congressional review, the FMB1 analysts are responsible for preparing or clearing budget material provided to Congress in support of MilPers and O&M appropriations. This may include budget justifications, clarification statements, a transcript of hearings, answers to questions, point papers, and appeals to authorization and appropriation reports. (McCaffery and Jones, p. 250-251)

E. MILITARY PERSONNEL APPROPRIATIONS

The rescission in this section targets the Military Personnel appropriation. MilPers provides funds for pay, allowances, individual clothing, permanent change of station travel, and expenses of temporary duty travel between permanent duty stations for those members on active duty. Funds are also provided for retirement pay of military personnel, including reserve components. These are one-year operating appropriations, and are available for obligation only during the year for which they are appropriated. They are managed at department headquarters level (Army, Navy, and Air Force). Estimates of the amounts needed are based on personnel end strengths. The Appropriations Act stipulates the amount of new obligation authority available to cover military personnel costs. In addition, the active duty military personnel strength, showing

the number of officers, enlisted men, midshipmen, and cadets, is present in the Act. The Act also serves as a control mechanism because Congress is able to stipulate the size of military force structures by adjusting appropriation authorization levels. (U.S. Army, 2003 p. 17)

The DoN MilPers appropriation is divided into two categories, active and reserve. The active MilPers is composed of Military Personnel, Navy (MPN) and Military Personnel, Marine Corps, (MPMC) appropriations. The reserve MilPers consists of Reserve Personnel, Navy (RPN), and Reserve Personnel, Marine Corps (RPMC) appropriations. Figure 4 depicts this relationship. (Taylor, p. 42)

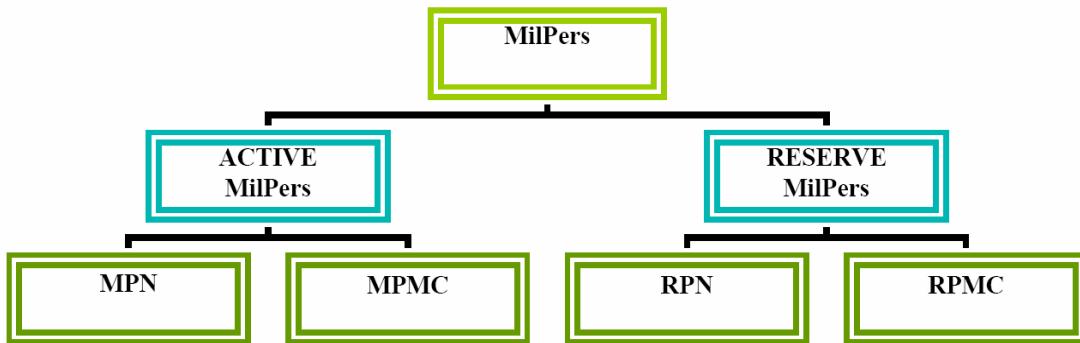


Figure 4. Marine Corps MilPers appropriations

The budget activities funded by the MPN and MPMC include pay and allowances of officers, enlisted, and midshipman, subsistence of enlisted personnel, permanent change of station travel, and other military personnel costs. The budget activities funded by the RPN and RPMC appropriations also include unit and individual training and other training and support.

When determining the MilPers budget estimate, analysts use an average cost basis. The numbers of people promoted, departing, arriving and already serving are all factors that affect the level of the MilPers budget estimate. The allotment for pay and allowances, which requires the most from the MilPers account, is established from these estimates. (Taylor, p. 43)

For fiscal year 2004, Congress authorized \$8.97 billion for MPMC. Our goal of saving \$25 million represents 0.28 percent of the authorized appropriations for MPMC.

The cost savings involved in this case could come from any combination of programs within MPMC appropriations. Moving funds from other appropriations is a "transfer" and would require transfer authority. In our case we will consider only cost savings and will not address reprogramming or transfers to meet the \$25 million cost savings goal.

F. COST SAVING OPTIONS

The U.S. Marine Corps can review studies of other services and how they accomplished cost savings to meet new budget constraints (such as a rescission). The following sections show possible options for cost savings. Some are temporary, short-term fixes, while others provide long-term savings. In addition, although quantitative data was not available, a qualitative look at some areas may provide insight into further alternatives. A combination of options is most plausible given future budget constraints.

1. Restructuring Overseas Commands

The RAND Institution conducted a study in 1996 – 1997 for the U.S. Army to examine the feasibility of rotating units from the United States to maintain a forward presence in Europe, vice permanently stationing units in Europe. The objective of the study was to identify the most important policy changes and assess both the feasibility and potential costs. More specifically, the U.S. Army was interested in re-stationing four heavy brigades and division support units back to the United States while maintaining the same amount of forward presence in Europe through six-month rotations.

The Army study was driven in part by DoD downsizing that began affecting all of the military services in the late 1980s and continues today. The following table shows the general trends for all services.

FISCAL YEAR	TOTAL	ARMY	NAVY	MARINE CORPS	AIR FORCE
1987	2,168	777	583	199	609
1988	2,138	769	581	197	591
1989	2,121	766	584	196	575
1990	2,079	750	583	196	550
1991	2,033	734	575	198	526
1992	1,898	663	551	190	494
1993	1,743	590	520	181	452
1994	1,654	560	485	175	434
1995	1,562	528	449	174	411
1996	1,490	497	426	173	394
1997	1,439	492	396	174	377
1998	1,412	483	385	172	372
1999	1,377	473	370	172	362
2000	1,373	475	370	172	356

Source: *Washington Headquarters Services, 2000* (qty in 1000s)

Table 1. Average Active Duty Military Strength

Effects of these manpower reductions included the reorganization of units and/or reduction in unit strengths. The U.S. Army was particularly hard hit with reductions of over 300,000 personnel. Meanwhile, new missions appeared for the European Command after the fall of the Berlin Wall, and the collapse of the former Soviet Union.

The end to the Cold War changed the United States' overall National Security Strategy from a bi-polar and global focus to a multi-polar regional focus with many asymmetric threats. With Desert Shield/Storm, the DoD was able to temporarily stall the trend in manpower reductions, but was still engaged in force shaping to meet new missions requirements looming on the horizon. These new missions were quite different from the long-standing Cold War mission to defend central Europe. They instead placed more emphasis on regional conflicts, humanitarian activities, military to military exchanges, and peacekeeping operations.

The European Command went from 213,000 soldiers in 1990 to 122,000 in 1992, and from 858 installations to only 415. The reduction target was even more severe – to

decrease manpower to 65,000 by 1995. The units that were transferred, re-designated, or inactivated included the VII Corps, the 3d Armored Division, the 8th Infantry Division (Mechanized), the 2d Armored Cavalry Regiment, and the 11th Armored Cavalry Regiment. Many smaller supporting units also disappeared.

Today, V Corps is the U.S. Army's only forward-deployed corps, consisting of two heavy divisions, a corps support command and nine separate brigades totaling approximately 41,000 soldiers. V Corps represents the bulk of U.S. Army Europe's combat power and is continuously engaged in the European Command's area of responsibility. On any given day, twenty five percent of V Corps is deployed. (Pike, 2002)

Given these significant manpower changes, RAND was commissioned by the Army to determine, in part, how the U.S. Army was going to meet emerging mission requirements in the European and Southwest Asia theaters. Defense downsizing created, and continues to create, competition for declining resources. Not only did the U.S. Army need to figure out how to maintain a forward presence, but they also needed to do it as cheaply as possible. In addition to cost savings, the U.S. Army wanted to accomplish other specific objectives to include stabilizing the soldiers and their families, and increasing flexibility to meet mission requirements. In so doing, a key goal was to keep from diminishing training and readiness.

The chart below provides a summary of the RAND study findings. The high points at the time of the study were that the Army could move 20,000 to 25,000 personnel and 15,000 family members back to the United States; however, this would increase family separation time. Frequency of PCS moves would decrease overall. Training and readiness would have to be managed, weighing the positive effects of smaller, more flexible units, with the negative of reduced training cycles to cover all mission areas. But perhaps of most interest to the Marine Corps in this study are the cost findings shown in figure 5. (Hix et. al, 2003)

Summary of Findings	
Feasibility	<ul style="list-style-type: none"> • Can rotate 20-25K of 65K • CONUS bases can accept 4 brigades--costs
Personnel & families	<ul style="list-style-type: none"> • More stable tours, but TDA demand for NCOs • More families resident in CONUS • Family separation rate higher
Cost	<ul style="list-style-type: none"> • \$700-830M, up-front for unit facilities in CONUS • \$200-350M annual savings • Equipment needed for 4 brigades – possible compatibility issue
Training & readiness	<ul style="list-style-type: none"> • 16 hvy bdes w/ 4 depl–18 mo. CONUS, 6 mo. depl 5 depl–13 mo. CONUS, 6 mo. depl • CTC rotations feasible, but limited training time • Lumpy unit readiness, DIV training challenges • More flexible force -- with brigade focus
Arroyo Center	KAND

Figure 5. RAND study findings for U.S. Army Europe manning

Cost savings were broken down into one-time initial expenditures and recurring benefits that reduce costs in later years. One-time expenditures, estimated at \$700 to \$830 million (range due to site options) were primarily construction costs to move units into non-existing structure in the United States. Recurring annual savings, estimated at \$200 to \$350 million (range due to variances in housing and separation allowances) included housing savings, cost of living allowance savings, and PCS savings.

This study advised on the feasibility of moving military forces from overseas locations. The lesson here is that between the publishing of the report and today, the U.S. Army personnel strength in the European Command has dropped from 65,000 to 41,000. This is a possible solution that could be adopted by the Marine Corps to meet cost savings in the short-term and could also be sustained for the long-term.

The Marine Corps is an expeditionary force that relies on quickly deterring the enemy through forward presence. Although the Marine Corps performs many missions in support of the National Security Strategy, this analysis centers on the permanent force

structure in Okinawa, which could be reduced while still meeting mission goals. As shown in Figure 6 below (DoD, 2001), deployed Marines provide forward in the Pacific and Southwest Asia rather than Marines stationed overseas. Restructuring units in Okinawa could be one answer to the manpower rescission.

Performance Measure 1.1.3 – Marine Corps Overseas Presence ^a					
	FY 1998 Actual	FY 1999 Actual	FY 2000 Target/Actual		FY 2001 Target
Deployed MEU/ARG Days	1,083	1,095	912–1,004	1,053	912–1,004
<i>Percentage of Time Regions Were Covered by One or More MEU/ARGs</i>					
<i>Pacific</i>	<i>100</i>	<i>90^b</i>		<i>100</i>	
<i>Europe</i>	<i>100^b</i>	<i>100</i>		<i>91</i>	
<i>Southwest Asia</i>	<i>48^b</i>	<i>47^b</i>		<i>53</i>	

^a This metric has been revised. The performance targets now reflect the planning factors used to allocate Marine forces to projected overseas presence tasks. The percentage of time regions were covered by one or more Marine expeditionary unit/amphibious ready groups (MEU/ARGs) is included in the table to illustrate past performance only.

^b Revised from FY 1999 performance report; previously published percentages were slightly in error.

Figure 6. Marine Corps Overseas Presence

Currently there is a permanent structure in Okinawa, which for the most part supports the Unit Deployment Program (UDP). These transient Marines come from personnel stationed throughout the United States. Reducing the overseas force structure could be achieved in many forms, but the general idea would be to keep base and training area infrastructure, establish an equipment readiness pool (similar to 29 Palms), and keep only minimal skeleton staffs (similar to the already standing 4th Marine Regiment on Okinawa). In addition, since III MEF and 3d Division are already "light" units compared to U.S.-based counterparts, combining them into a true Marine Expeditionary Brigade would also reduce unnecessary hierarchy within higher headquarters.

Today the Marine Corps personnel strength in Okinawa is approximately 20,000. The Marine Corps has adopted a two-year unaccompanied tour length, although personnel with one-year tour lengths are finishing their prescribed tours. In addition, approximately one-third of the personnel are on three-year accompanied tours. To execute this plan, the Marine Corps could stop a large portion of permanent change of

station (PCS) moves to Okinawa, excluding billets required for the restructure. An estimated 5,000 personnel (700 officers and 4,300 enlisted) will PCS to Okinawa during the summer of 2004.

DoN FY2004/2005 Budget Estimates reveal that the PCS cost to move Marines to Okinawa is approximately \$12,000 for officers and \$6,000 for enlisted. Canceling 5,000 moves to Okinawa would reduce the MPMC budget by \$32 million, exceeding the rescission target. In fact, canceling just 400 officer moves and 3,400 enlisted moves would meet the \$25M objective.

Notwithstanding considerable manpower turbulence in Okinawa during the summer of 2004, this proposal represents an immediate “fix” to the rescission and is also sustainable. Marines returning to the United States would not require new infrastructure as proposed by the U.S. Army, since these Marines would fill current structure shortages on U.S. Marine Corps bases. Priority units are currently manned between only 70 to 80 percent of tables of organization. Finally, this proposal meets many current DoD performance goals including: (1) support U.S. regional security alliances through military-to-military contacts and routine presence of ready forces overseas, (2) maintain ready forces to provide U.S. with the ability to shape the international security environment, (3) transform U.S. military forces for the future, and (4) streamline the DoD infrastructure.

2. Modifying PCS Standards

Since much of the cost avoidance associated with restructuring overseas commands is from reduced PCS moves, modifying general PCS policies may have an even greater overall savings effect. A study done by RAND in 1994 for the U.S. Army gives perspective to this proposal.

The turbulence of PCS moves causes both monetary and non-monetary costs. Since the non-monetary costs and possible future gains from modified PCS standards are not readily quantified, this section focuses primarily on the measurable PCS expense. The Marine Corps alone spends close to \$300 million per year on PCS moves.

The six basic classes of PCS moves used by the Marine Corps are depicted in Table 2 below. Both the accession and separation travel figures are likely to remain roughly unchanged unless there is either a major change in end-strength or a policy change affecting duration of service. Rotational travel, defined as movement of Marines to and from overseas, was discussed in the prior section; however, changes to tour length policies could have an additional effect in this area. Operational travel includes PCS movements of personnel within the Continental U.S. and “overseas” movements that are not transoceanic. Training travel is for PCS to formal schools while unit travel results from re-stationing entire units.

BUDGET ACTIVITY 5 - PERMANENT CHANGE OF STATION TRAVEL SUMMARY OF PROJECT REQUIREMENTS MOVES (In Thousands of Dollars)						
	FY 2002 Actual		FY 2003 Estimate		FY 2004 Estimate	
	Moves	Amount	Moves	Amount	Moves	Amount
ACCESSION TRAVEL	34,220	\$37,753	38,650	\$45,769	33,727	\$42,555
TRAINING TRAVEL	3,088	8,388	3,607	8,111	3,607	8,351
OPERATION TRAVEL	11,516	69,443	11,620	70,267	11,635	72,626
ROTATION TRAVEL	15,276	95,386	15,116	99,830	15,118	103,070
SEPARATION TRAVEL	33,685	36,201	36,806	44,614	33,677	41,799
TRAVEL OF ORGANIZED UNITS	3	27	1,003	2,463	1,003	2,513
NON-TEMPORARY STORAGE		4,491		4,942		4,901
TEMPORARY LODGING EXPENSE		10,181		11,130		10,167
IN-PLACE CONSECUTIVE OVERSEAS TOURS/ OVERSEAS TOUR EXTENSION INCENTIVE PROGRAM		2,554		2,219		2,268
TOTAL OBLIGATIONS		\$264,424		\$289,345		\$288,250
LESS REIMBURSABLE PROGRAM		(\$660)		(\$597)		(\$520)
TOTAL DIRECT PROGRAM	97,788	\$263,764	106,802	\$288,748	98,767	\$287,730

Table 2. Summary of Marine Corps PCS Travel Requirements

The data in Table 2 are presented graphically in Figure 7 below. Following are the percentages of total PCS travel represented by the various categories: Rotation travel, 36%; Operation, 25%; Accession, 15%; Separation, 15%; Training, 3%; Unit, 1%; TLE

(temporary lodging, which spans all classes), 4%; and IPCOT (in-place consecutive overseas tours), 1%.

Percent of PCS Budget by Class FY2004 Estimate

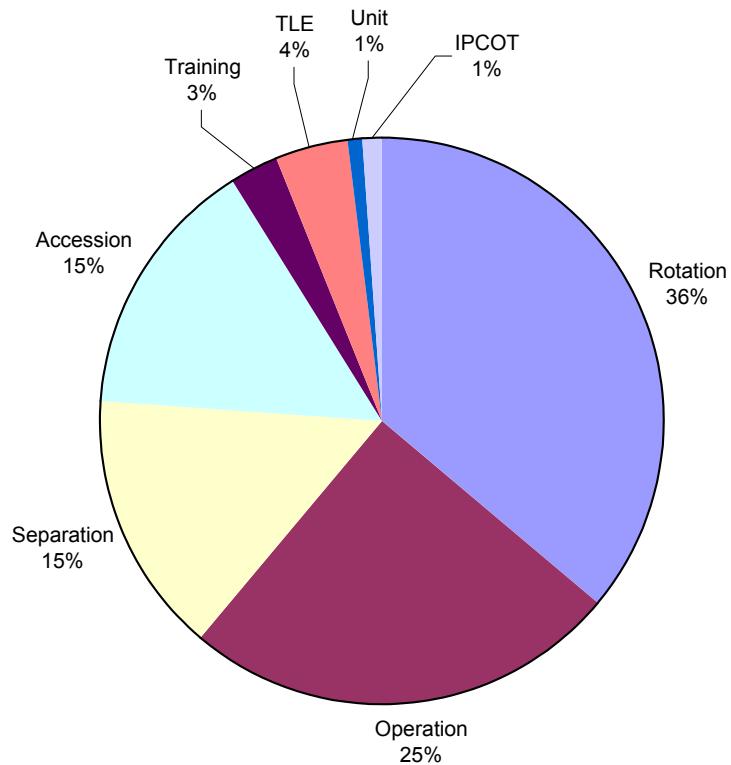


Figure 7. Marine Corps PCS travel expense by category

After rotation travel, the next highest expenditure in the PCS budget is operation travel. The two basic ways of saving costs in operational travel are extending tour lengths and/or allowing for more changes of assignment within the same geographic area (referred to as Permanent Change of Assignment (PCA) vice PCS).

The Marine Corps, like the other services, has a standard tour length of three years; however, unlike the other services, major Marine Corps bases are only located in a handful of geographic areas. This presents a possible rescission solution through either extending some PCS tour lengths or increasing PCA moves. A change to the overall tour length policy is not required to achieve target savings.

Canceling or delaying PCS moves and/or redirecting personnel to new assignments in the same geographic location presents an immediate solution to meet the \$25 million target in summer 2004. An initial proposal that equates the ratio of affected officer to enlisted personnel to the overall Marine Corps personnel ratio results in stopping or redirecting 500 officer and 4,000 enlisted PCS moves. This would save an estimated \$25 million at a rate of \$10,000 per officer move and \$5,000 per enlisted move. Affected personnel would represent only 2.5 percent of the officer community and 2.6 percent of enlisted Marines. This is a temporary fix; however, this policy would also be sustainable in the future given more flexibility in tour lengths and PCA for certain communities.

3. Officer Career Level Schools

Each year the Marine Corps moves officers to attend schools to complete grade appropriate professional military education (PME). PCS cost savings can also be realized by addressing this area. All Marine Corps captains must complete Expeditionary Warfare School (EWS) and majors must complete Command and Staff College (CSC) in order to be competitive for promotion. The Marine Corps offers two methods for officers to complete these courses. An officer can either attend a resident school or complete the appropriate correspondence course. For promotion purposes, both the resident school and correspondence course are considered equal. The costs involved for the two methods are not even close to being equal. Correspondence courses require only are printing, shipping and administrative handling costs. Resident schools include student PCS costs, the loss of the student from his or her service to the operating forces, the loss of the faculty from the operating forces, the faculty PCS costs, utility and administrative support costs. Both EWS and CSC convene from July through May and have a student body of approximately 200 officers each. Canceling a session of EWS and CSC would yield a \$4 million cost savings for the PCS costs of the students. Long term cost savings of shutting down both resident schools would yield a greater cost savings and increase the benefit to the operating forces. Another option for long-term manpower savings would be to shorten the school length to less than 180 days, the threshold beyond which temporary duty becomes a PCS.

4. Other Areas for Consideration

Cost savings could be achieved in other areas such as changes to accession, separation, promotion, and bonus policies. The following is a brief discussion of possible short-term and long-term effects in these areas.

The Marine Corps has budgeted for approximately 1,600 officer accessions and 32,000 enlisted accessions for FY2004. Of these accessions nearly half take place over the summer months. Accession PCS dollars amount to approximately \$5,000 for new officers and \$1,400 for new enlisted Marines. From basic pay tables, the first 4 months of pay and allowances is about \$14,000 for officers and \$10,000 for enlisted. Temporary cost savings of \$25 million could be achieved if the average summer accessions dropped by 100 officers and 2,300 enlisted over the summer.

Although possible, this "fix" could only be sustained if end-strength numbers were reduced. This temporary savings would have to be made up, if not in the following fiscal year with increased accessions, then at the end of current contracts at a higher pay rate (independent of net present value calculations). Furthermore, the detrimental effects of not accessing new personal even for a short period of time would be felt for many years to come. For example, training pipelines would slow down and create backlogs as more than expected personnel entered the system at a later date. Promotion rates may increase for a time period but would have to eventually decrease. Finally, the rotation schedule would be off balance. Replacement personnel needed in summer months would not be available to relieve prior year's forces scheduled to move from their current command.

This section excludes an analysis of changing separation, bonus, or promotion policies since the Marine Corps is not currently in a draw down and current separation incentive programs (as for schools) are already accounted for in the budgeting process. Also, authorizing early separations simply for the purpose of saving money in the current fiscal year MPMC budget may signal Congress that a reduction in end-strength is merited for future years. This is not a signal the Marine Corps wants to send.

A quick review of retention studies, quantitative and qualitative, identified the impracticality of pursuing budget cuts for bonuses and promotions. Both of these areas are tied to retention rates. To quantify the outcome of a cut in these areas would require extensive study and regression analysis. But, cuts in this area even for the short-term are not recommended.

G. SUMMARY OF MARINE CORPS MANPOWER RESCISSION

In this section we introduced a scenario in which the Marine Corps manpower appropriation was reduced by \$25 million midway through the fiscal year. We briefly described the budgeting process, the source of appropriations, and provided cost savings proposals. The cost savings options introduced were restructuring overseas commands, delaying PCS moves, canceling resident officer PME, and also other areas for consideration. All of these options have short-term effects and long-term implications. Any changes to current programs, even changes as small as 0.2% of an appropriation, will create a ripple effect that will permeate throughout the Marine Corps. The best solution would be one that minimizes the effect of the ripple.

One area that continued to surface among all options was the services ability to affect PCS costs. The reduction or delay in PCS moves appears to be the most feasible and causes the least amount of disruption. The RAND graphic shown below as Figure 8 is applicable to all military services. (Hix et. al 1998) It provides a good synopsis of what drives the cost in each PCS class as well as the amount of control a military service has over this portion of the budget.

Drivers and Policy Actions by PCS-Move Class

PCS-Move Class	Driver	Policy Action	Service Control?
Accession and separation	Size of force Duration of service	Increase duration of soldiers' service	Yes
Rotational	Overseas force strengths	Reduce overseas authorizations	No
	Overseas tour lengths	Increase overseas tour lengths	Partial
Training	Officer development requirements	Change training policy for officers: TDY rather than PCS	Yes
Operational	Professional development, TDA tour lengths, reenlistment options, strength imbalances	Revision of associated policy drivers	Yes
Unit	Base realignment	None needed at this time	Yes

Figure 8. PCS Cost Drivers and Policy Actions

Taking into account externalities and opportunity costs, the entire cost savings goal should not come from a single proposal, but from a mix of several options. By determining the maximum utility of all options, given a budget constraint, the Marine Corps can minimize the detrimental effects of the rescission. Many externalities and opportunity costs are difficult to quantify and measure, but must be considered when determining marginal benefit and marginal cost of any resource.

In this chapter we have traced the far-reaching ramifications of even a small reduction in Marine Corps manpower. We have thus framed the enormity of the trade-offs discussed in Chapter IV and have illustrated the challenges and limitations of financing fleet re-capitalization through merely streamlining operations. Many cost-avoidance proposals like those presented above will be deemed too difficult or disruptive for the efficiency gained. Instead, many will look to outsourcing as the long-term solution to capturing business efficiencies. Although we noted in Chapter IV that outsourcing offers only limited financial relief with respect to the overall re-capitalization

requirement, outsourcing has become a common and widespread practice in DoD. In the next chapter, we review the DoD guidance on outsourcing, present the strategic issues associated with outsourcing in the private-sector business literature, summarize lessons learned from recent DoD outsourcing experience, and chart the road ahead for outsourcing initiatives.

VI. OUTSOURCING OPTIONS

All the effort in this study, to this point, has been to illustrate the grave financial circumstances facing the Department of the Navy. Resolving the problems related to increasing mission and resource demands within budget constraints appears to be an almost insurmountable task. On one hand, the DON must be able to fight and win wars. On the other, the operating and readiness budgets must be reduced to finance recapitalization. The key question in this case then becomes: how are we going to do both? This same question has been fielded many times and the usual suspects seem to give the same, unspecific “cure all” answer: outsourcing. It seems as though everyone involved in this process has the predominance of their hopes riding on outsourcing to save the day. We have shown in Chapter IV that outsourcing will produce an admirable savings, but nowhere near the total savings needed. It is, however, a good start.

The following section on the inherent risks and resulting lessons learned from outsourcing is provided to assist those who are beginning their long cost-saving journey with this approach. The hope here is that those who are considering outsourcing as a cost saving measure will consider the delineated risks thoroughly and heed previous lessons learned before making a final decision.

A. THE GOVERNMENT OUTSOURCING ROADMAP

The Office of Management and Budget has taken the first step toward outsourcing efficiency with the production of Circular Number A-76. A-76 can be considered the Federal Government outsourcing roadmap, in that it shows the way from the beginning of the outsourcing process to the end. It describes, often in unspecific terms, when and how to outsource. Using vague terms such as “inherently governmental” and “significantly affecting,” A-76 tends to provide a limitless grey area in which to operate, potentially adding confusion to the process. What A-76 does *not* do is give instruction as to what risks need to be considered in the decision making process. Risks directly affect the bottom line and are often key determining factors in the success or failure of an

outsourcing initiative. The simple fact is that risks are often replaced with bottom line savings estimates that effectively gold-plate risky outsourcing alternatives.

B. THE OUTSOURCING PROCESS

The outsourcing process, depicted in Figure 9 below, begins with the classification of activities currently performed by government personnel as either commercial or inherently governmental. A commercial activity is defined as “a recurring service that could be performed by the private sector and is resourced, performed, and controlled by the agency through performance by government personnel, a contract, or a fee-for-service agreement. A commercial activity is not so intimately related to the public interest as to mandate performance by government personnel” (A-76 pg A-3) An inherently governmental activity is one “that is so intimately related to the public interest as to mandate performance by government personnel. These activities require the exercise of substantial discretion in applying governmental authority and/or making decisions for the government.” (A-76 pg. A-2) All government activities are required to complete this classification process yearly and prepare an activities inventory that identifies the classification results.

Once the classification process is completed, the annual inventory of all activities is submitted to the Office of Management and Budget (OMB). OMB then reviews the inventory submissions, submits the inventories to Congress and the public, and publishes a notice of availability in the Federal Register. At this point, all activities deemed commercial are eligible to begin the public announcement phase. (A-76 pg. A-1)

The public announcement phase begins with the announcement of an A-76 study by the government agency involved. The public announcement is composed of necessary information for all parties involved and includes agency information, activity information, and important dates. From the public announcement a Performance Work Statement (PWS) and Quality Assurance Surveillance Plan (QASP) are developed. These documents include necessary performance data, performance standards, and any other information necessary for the successful completion of the activity. (OSD, Share A-76!)

The PWS and QASP are distributed to the private sector and originating agency. The private sector parties submit offers for completion of services to a Source Selection Authority (SSA) who evaluates all private sector submissions and selects the most appropriate offer to compete with the originating agency's "in-house" offer. The originating agency develops a Government Management Plan (GMP) as the in-house offer and submits it for review to an Independent Review Official (IRO). The IRO assures that the GMP is reasonable and meets the requirements of the PWS and QASP. (OSD, Share A-76!)

The private sector and in-house originating agency offers are compared in the cost comparison phase. The private sector offer must be less than the in-house offer by 10% or 10 million dollars, whichever is lower, for the activity to be awarded to the private sector. (OSD, Share A-76!) A preliminary decision is promulgated and an appeals process is begun where either party can appeal the preliminary finding. After the appeals are exhausted a final decision is made and implementation of the GMP or conversion to private sector begins.

It is evident, as demonstrated by this brief summary of the A-76 mandated outsourcing process, the Office of Management and Budget is very thorough in explaining how to go about outsourcing an activity deemed commercial in nature. The problem is that the government's instruction on outsourcing does not address risks associated with conversion to the private sector. It is these risks that will be discussed further in an effort to inform decision makers and make the ever popular outsourcing movement a successful foundation for recapitalization.

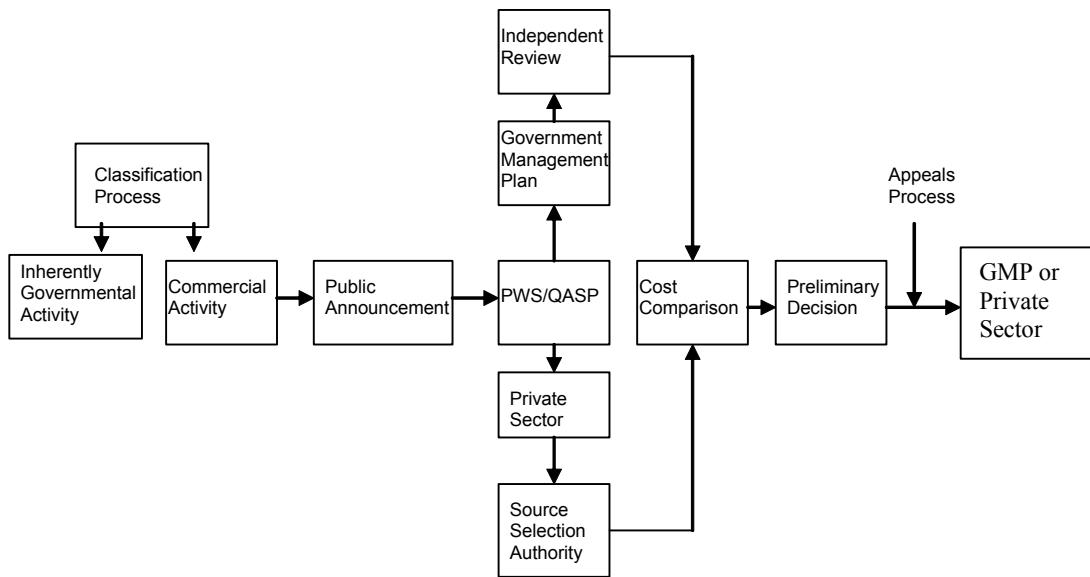


Figure 9. A-76 Outsourcing Process Map

C. BUSINESS ISSUES ARISING FROM OUTSOURCING

Outsourcing is not a new business concept. After identifying a core competency, many private-sector firms have outsourced non-core functions to acquire innovation from functional specialists, free management time, and free working capital for other investments. Human resources, payroll, shipping, printing and information technology have been popular outsourcing targets. In its implementation, outsourcing is fundamentally a classic make-buy decision. But outsourcing is not without risk, especially when the firm is focused primarily on short-term cost avoidance. For example, managing an outsourced function can be more challenging and more costly than performing the function in-house. Capable contractors can also develop substantial supplier power over the firm. In fact, recent studies suggest that only about 5% of firms achieve their outsourcing objectives and that most, like the Department of Defense, express their objectives only in terms of short-term cost-savings or manpower reductions. Thus, the decision to outsource must be based not only on short-term cost avoidance, but also on a strategic assessment of how outsourcing will provide a long-term competitive advantage to the firm. (Lonsdale, p.21)

1. Strategic Risks

A recurring theme in business literature is that outsourcing is a *strategic* decision. However, many firms make outsourcing decisions using only operational analyses. For example, the decision to terminate an in-house print shop in favor of a contract with the local printer would typically involve a comparison of in-house costs with the annual contract fee. But this analysis falls short of capturing all of the strategic business risks inherent in the decision. Perhaps, for example, the quality and timeliness of printed material differentiates the firm's services from competitors. Perhaps the in-house print shop routinely performs "expedited" orders that would be very expensive using a contractor. The following section introduces several categories of strategic risks that should be considered when analyzing outsourcing alternatives.

First, a strategic assessment of outsourcing alternatives should begin with identification of the core functions that differentiate the firm. The firm must maintain control of these functions to remain competitive into the future. Since the core functions of a firm may change over time, the firm must forecast the dynamics of the business cycle in their industry and avoid outsourcing either current or *future* core competencies.

The challenge of identifying core competency is evident in a concern as large as DoD, which uses the term "inherently governmental" to describe functions as core. As discussed above, the test of "inherently governmental" in OMB Circular A-76 is simply whether the current function is intimately related to the public interest enough to require performance by government personnel. But this test falls short of identifying functions central to the agency's current mission capability and certainly does not imply a rigorous, iterative assessment of outsourcing decisions with respect to future mission requirements. For example, the U.S. Army reduced manpower cost by the late 1990s by moving all civil affairs billets to the Reserve and National Guard, in part because the political-military duties associated with "nation-building" were not considered "core" in places like Kosovo and Somalia. However, nation-building is proving a vital coalition function in the Global War on Terrorism and Army civil affairs battalions have been mobilized for duty in places like Afghanistan and Iraq. This example suggests that outsourcing

decisions should be made at a high level in the organization and should be informed by the strategic planning considerations discussed in Chapter III.

A shift of strategic focus to core competency requires abandonment of the traditional cost-focus of many strategic assessments. A cost-focused outsourcing assessment will generally target poorly performing, “high cost” units, even if they provide a core function of the firm. Interim cost cutting measures will further erode performance and make the struggling unit appear even less favorable during strategic sourcing. Although management may be vindicated in the short-run by initial cost savings from outsourcing, the firm will reallocate fixed overhead costs among the remaining units and suffer increased supplier power. These factors will combine to make other units appear less favorable during the next strategic assessment and perpetuate an outsourcing “death spiral” that results when the firm fails to identify and invest in its core competency. (Bettis)

Second, firms must also consider strategic flexibility during outsourcing assessments. For each individual function, the firm could likely find a specialist that would be more economically efficient. But the benefits of outsourcing reach a tipping point when the firm all but eliminates the possibility of a system-wide innovation. An excessively outsourced firm engages merely in the coordination of a diverse and often inefficient array of independent suppliers. Opportunities for cross-functional communication and synergy are lost. For example, combat logistics services in Iraq are performed almost exclusively by large contractors with impressive economies of scale. However, these support contracts represent a decision by DoD to forego the strategic and operational flexibility of maintaining indigenous capability. Firms should engage in comprehensive strategic evaluation of all past and current outsourcing initiatives rather than just the incremental benefits of the next potential outsourcing alternative.

Third, the firm should consider the impacts of its outsourcing decisions on the entire value chain and recognize that many decisions are irrevocable. We have already suggested that outsourcing increases supplier power over the firm. This is especially true in industries with few suppliers that provide unique services. A firm that sources a function removes itself from the value chain as a supplier of that function. The result in

specialized industries could be a de facto value chain integration in which the remaining suppliers can dictate unfavorable terms to the firm. For example, DoD has retained only nominal indigenous capacity for contingency construction and logistics support. A much publicized consequence is that DoD contracted for such services in Iraq with Halliburton subsidiary KBR as one of the only responsive, responsible sources. In view of the recapitalization challenge outlined above, a future DoD decision to reconstitute indigenous construction and logistics capability would be financially infeasible. The enormous manpower, training and capital expenses that would be required make the decision to outsource nearly irrevocable.

2. Operational Risks

In addition to the three categories of strategic risk discussed above, outsourcing introduces a number of operational risks that are sometimes omitted from analysis of alternatives. These risks emerge not from the decision of *whether* to source a function, but the decision of *how* the function will be sourced.

First, the nature of the supplier relationship introduces risk. The firm must choose a supplier relationship appropriate to the nature of the function. An inappropriate or poorly worded contract could expose the firm to unreasonable risk of interrupted service, poor quality service, or cost growth. Most firms hire or consult with acquisition professionals in the preparation of contract language, but the firm must understand the nature of incentives implicit in the various contract types. For example, a fixed-price contract might be appropriate for a well-defined, routine, or recurring service. However, a fixed price might be inappropriate for a developmental product or unique service for which the costs are not well understood. In an inflationary environment, such a contract would provide incentive for a contractor to cut corners since it could not recover cost growth from the firm through price increases. In general, the contract should allow the firm to maintain sufficient control of the supplier, but allow both the firm and supplier reasonable flexibility to adjust the nature of the relationship as circumstances change. At a minimum, the contract should clearly state service levels and measurements, penalties for non-performance, growth and inflation rates, and termination provisions. (Lonsdale, p.146)

A further consideration is the *length* of the supplier relationship. The growth and inflation estimates mentioned above become less reliable in longer duration contracts. Such contracts also commit the firm to its current decision even though the factors influencing the decision may change significantly during execution of the contract. Firms must weigh any cost-savings from long contracts against the loss of flexibility implicit in multi-year arrangements. One compromise is a base contract with option periods that enable both the firm and supplier to review the relationship periodically and consider other alternatives.

Second, the nature of supplier support introduces risk. The firm must allocate sufficient resources to effectively manage the supplier relationship. This may require personnel specializing in requirements generation, estimating, contracting, quality assurance, and contract law. The firm may be required to provide resources directly to the supplier including office, lab or warehouse space, equipment, data or liaison personnel. Although all of these requirements should have been included in the sourcing decision, any attempt to further reduce cost in these areas could be disastrous. Interrupted or poor quality supply could cripple the firm, especially if the function outsourced was a core or "near-core" competency. These contract support costs are a significant part of the reason that only about 30% of original DoD program costs are recovered when a function is outsourced.

Third, the nature of performance measurement introduces risk. The firm must be able to measure supplier performance against an objective standard expressed in terms of the impact of the supplier on the business. (Lonsdale, p. 151) Research suggests that supplier performance peaks at contract initiation and in anticipation of contract renewal. Thorough performance measurement, especially when coupled with financial performance incentives, can maintain a more consistent level of service for the firm. Performance measurement can also provide the firm an early warning of contractor failure before any damaging impact to the firm's business. Motivation theory suggests attributing a small number of objective measures to specific individuals who will suffer explicit consequences at various thresholds of performance. However, DoD is increasingly moving toward performance-based specifications with subjective, outcome-

oriented performance measures. Although these measures tend to capture the overall performance of the supplier in various periods, they may not provide sufficient warning to the government that supplier failure is imminent. This is especially risky when the consequence of interrupted supply is a loss of mission capability.

Fourth, the nature of the product or service introduces risk. After a strategic decision to outsource, the firm must further refine areas of operational risk inherent in the sourced function. Perhaps the contractor will now interface with the firm's customers. Perhaps the firm imposes such restrictive constraints and deadlines on performance that quality will suffer or premium fees will be required. In the worst case, the function is so unique or complex that the supplier may simply be unable to perform.

The largest government outsourcing initiative in history for a single function is the Navy and Marine Corps Intranet (NMCI). NMCI is a loosely defined, \$8.8B performance contract awarded to Electronic Data Services (EDS), which calls for the contractor to assume responsibility for over 360,000 computer workstations. In June 2003, rumors circulated that EDS would attempt to terminate its contract after announcing a \$334M quarterly loss on the project. (French) EDS has continued to perform, but concerns about the quality of service and long-term solvency of the company linger.

Although information technology (IT) outsourcing is increasingly common among large firms, both the government and EDS underestimated the enormous scope and complexity of the NMCI initiative. Part of the problem for EDS is that the government initially requested hardware configured for individual users. Since Navy and Marine Corps personnel rotate so frequently, EDS often delivered workstations customized for users who had already transferred. The government responded by specifying a standardized workstation configuration, but then grossly underestimated the number of legacy software applications that the NMCI platform would need to support. Users became frustrated by the contractor's pace of implementation and level of customer service. In both instances, a setback occurred due to a performance risk inherent in the nature of the service.

3. Cost-Benefit Considerations

The strategic and operational risks discussed above highlight the need for careful and comprehensive cost-benefit analysis of all outsourcing opportunities. Whereas “benefit” is usually expressed as a relative cost reduction from outsourcing compared to in-house operations, “cost” is far less tangible. Short-run quantifiable expenses like consultant fees and contract administration fees usually appear in the analysis, but “costs” may also include the long-run competitive viability of the firm if the core competency is inadvertently outsourced. Costs may also include increased supplier power, structural change of the value chain, and loss of strategic flexibility. For these reasons, cost-benefit analysis of outsourcing alternatives should be done at the strategic level of the organization and should follow a robust and iterative methodology. (Lonsdale, p. 165)

We noted that outsourcing benefit is often easier to capture than cost. But outsourcing decisions are sometimes influenced by many perceived benefits that do not reflect in the analysis. For example, some private-sector firms have used outsourcing to solve problems that they were unable or unwilling to solve themselves, even though these problems were occurring in a function central to the firm’s operations. A more appropriate solution would have been to devote the management time necessary to control the function internally. Also, some firms outsource in the hope of achieving future benefit from the growth and innovation of the supplier. This is especially true in the area of enterprise resource planning where large IT firms provide comprehensive software packages that integrate and manage all standard business functions such as human resources, accounting, and billing. These suppliers promise untold efficiencies from system-wide integration, but often charge a very large premium to customize the standard software for a particular industry or firm. In the end, the best enterprise software can not substitute for the knowledge, skill and intuition of management. These systems only provide management with better information and perhaps some more free time to make decisions.

As the firm, industry and environmental factors change over time, the firm must continually re-evaluate the cost-benefit analysis of prior outsourcing decisions. The dusty analysis from the original decision is not applicable to future reviews since there

maybe a new supplier offering a different package of services. Perhaps the labor market for a particular trade has changed significantly or new technology has made in-house operation feasible again. We may consider document processing for example. Many large firms outsourced document processing before the advent of desktop publishing and multi-function office machines that can perform many of the complex printing, binding and mailing services provided by commercial printers. Such firms should now be engaged in routine “insourcing” analysis to determine when it may be appropriate to purchase new equipment and terminate service contracts. Such reviews need not correspond with the contract renewal period, but fees for early termination fees in the contract often influence the analysis significantly.

A common theme in business literature is that cost-benefit analysis of outsourcing alternatives should follow a long-term, strategic methodology and be formalized in a standing policy. (Lonsdale, p. 165) DoD uses OMB Circular A-76 as its outsourcing policy. As discussed above, A-76 provides a helpful framework for classifying functions and obtaining market information. However, one consequence appears to be a thrust to outsource all “commercial” functions that can be performed more cheaply by the private sector. This approach ignores many of the risks listed above and does not constitute a robust strategic positioning of DoD with respect to current and future mission requirements. The A-76 methodology has such a strong emphasis on cost avoidance that few would propose a more costly in-house alternative to outsourcing, even though it may provide greater long-term strategic benefit.

Outsourcing analysis should incorporate the lessons learned in the acquisition community that “best value” is generally better for the government than “lowest cost.” In the next section we look more extensively at DoD outsourcing and review some of the costs, benefits, risks and lessons learned from the DoD implementation.

D. DOD OUTSOURCING IMPLEMENTATION

All government agencies have an obligation to U.S. taxpayers to manage scarce resources effectively. Congress and the public entrust DoD to develop managerial and financial efficiencies while avoiding instances of waste, fraud or abuse in the execution of public funds. About 60% of DoD annual obligation authority is consumed by support

infrastructure costs, of which personnel account for nearly half of the total. (Gates and Robbert, p. 1) In order to maintain combat effectiveness and support operational requirements, these infrastructure costs are an enticing source of potentially large savings. Competitive sourcing is increasingly viewed as a way to generate efficiencies, reduce overhead costs and capture savings.

Competitive sourcing is a process through which government agencies consider proposals from both private businesses and agency employees to determine who can provide a given level of service at the lowest cost. Competitive sourcing differs from outsourcing in a fundamental way: it allows both external and *internal* suppliers to compete to provide services, whereas outsourcing looks only to external suppliers in search of better value. As addressed above, OMB Circular A-76 spells out the rules and procedures government managers must follow when they solicit competitive sources. Recent government experience has also yielded several “best practices” for achieving competitive sourcing goals, which include: demonstrate active support of agency leaders; employ proactive, strategic thinking; encourage creativity and a long term outlook; use centralized management with decentralized execution; group together functions for competition to achieve economies of scale; seek outside assistance from independent sources; develop innovative management tools to monitor and gauge success, such as an internal scorecard and time limits on decisions. (Dumas and Stephens)

One of the main benefits of competitive sourcing is that government agencies are compelled through competition to identify the most efficient organization (MEO) capable of delivering the required services. Cost savings are often achieved prior to outsourcing when an agency identifies and eliminates inefficiencies with the traditional way of doing business. For example, the Office of Management and Budget concluded that the only way to reduce the cost of printing the fiscal 2004 federal budget was to competitively source the service traditionally provided by the Government Printing Office (GPO). Forced by competition to evaluate their operations and improve efficiencies, GPO reduced costs and submitted a bid that was 24 percent less than what they had charged for printing the fiscal 2003 federal budget, a savings of nearly \$100,000. (Segal and Moore)

E. DOD OUTSOURCING CHALLENGES

Despite the opportunity for additional savings represented by the GPO example and the “best practices” noted above, DoD has encountered several of the same outsourcing challenges experienced by private industry.

First, DoD has not fully implemented a comprehensive, strategic, iterative outsourcing methodology as suggested by private-sector experience. Although A-76 provides both policy and procedure for competitive sourcing, President Bush suggests in The President's Management Agenda for 2002 that some agencies have shielded themselves from competition by not aggressively subjecting all non-governmental functions to competitive sourcing:

Nearly half of all federal employees perform tasks that are readily available in the commercial marketplace—tasks like data collection, administrative support, and payroll services. Historically, the government has realized cost savings in a range of 20 to 50 percent when federal and private sector service providers compete to perform these functions. Unfortunately, competition between public and private sources remains an unfulfilled management promise. By rarely subjecting commercial tasks performed by the government to competition, agencies have insulated themselves from the pressures that produce quality service at reasonable cost. (PMA, 2002)

Second, DoD has focused almost exclusively on cost avoidance in the implementation of A-76 and has not necessarily considered a “best value” approach to competitive sourcing. For example, GAO noted that A-76 has not worked well as the basis for competitions that seek to identify the best provider in terms of quality, innovation, flexibility, and reliability. (GAO, Jun 26 2002, p. 9)

Third, DoD has been challenged to identify and assess current costs since many agencies do not maintain adequate financial records of work performed in-house. The performance work statement (PWS) that is generated for competition with the private sector often understates or omits costs that are not realized until after the sourcing decision. Other errors are made in the assessment of governmental functions due to the assignment of inexperienced or untrained personnel to perform the cost analysis. Further,

agencies have often required three to four years to even define the jobs being considered for competition. Finally, agencies lack sufficient data to determine accurate post-award or MEO cost savings.

Fourth, DoD does not always capture the investment costs associated with performing the competitive analysis and transitioning to either MEO or contract. When an agency does not include all A-76 costs in their projections, critical shortfalls will not be reflected in the DOD savings calculations and will require local funding to cover additional costs. Total sourcing costs often include: training of government personnel involved in the A-76 process; production of study documents (e.g., PWS, MEO, etc.) by government employees with contractor support; source selection and evaluation board costs (salary of government employees evaluating contractor and government proposals); independent review of government documents; lost productivity (redistribution of work normally done by employees directly or indirectly involved in the study); transition costs (employee workshops, job fairs, additional administrative support to affected employees, management of potentially adverse employee impacts, and transition training); contractor phase-in (overlapped expenses associated with loss of government workers prior to contract start date); voluntary separation (incentive payments to reduce effects of reductions in force); severance pay; priority placement program (entitlement expenses for displaced employees gaining employment outside the commuting area). (Fritz)

Finally, DoD has not always performed rigorous strategic risk assessment of competitive sourcing alternatives. As with private industry, all government outsourcing decisions involve risk and tradeoffs. For each tradeoff there is an incremental degree of risk that the decision maker accepts. Two of the more substantial risks in government sourcing decisions are control risk and performance risk.

Control risk arises when the agency head sacrifices a degree of control during outsourcing and is instead bounded by the terms of a contract. When uniformed personnel are replaced, a commander no longer has authority to adjust schedules or requirements unless those changes are specifically addressed in the contract. This loss of control is even more significant when the actions of contractors risk bringing discredit to the government. For example, Titan and CACI International Inc., a Lockheed subsidiary,

provided civilian interrogators at the Abu Ghraib prison near Baghdad in 2004 to augment indigenous military capabilities. The role of civilian interrogators and the chain of accountability at the prison have brought the issue of strategic outsourcing risk into sharp focus.

As in private industry, performance risk arises whenever a government function is outsourced. The successful bidder may fail to fulfill all contract requirements, incur substantial cost growth, or even go out of business. These risks are mitigated by carefully assessing market conditions and conducting a thorough pre-award survey to include examination of past performance, financial reports, supplier references, and the resumes of key management personnel. Cost overruns are further minimized by rejecting unreasonably low bids. (Segal and Moore) However, even these steps may be insufficient when the activity outsourced was a core competency or significant non-core function.

F. SUMMARY OF OUTSOURCING OPTIONS

In this section we have presented the government's policy for outsourcing, examined the competitive sourcing procedure defined by OMB Circular A-76, reviewed the costs, benefits, and risks of outsourcing from the perspective of private-sector firms, and summarized government implementation of competitive sourcing. Our study reveals that the DoD has made commendable progress implementing the A-76 procedure, but must carefully consider the lessons learned from both DoD and private-sector experience. Sourcing policy must emphasize the *strategic, iterative* nature of all make-buy decisions and require explicit consideration of both the strategic and operational risks inherent in all sourcing decisions. In order to maximize outsourcing benefit and mitigate unintended consequences, DoD should place less exclusive emphasis on cost savings and more heavily weigh overall management efficiency and improved business practices. Long term savings can be sustained by carefully selecting the most appropriate supplier relationship and improving post-selection monitoring.

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VII. CONCLUSIONS

A. STUDY SUMMARY

The initial focus of this study was to define in broad terms the nature and scope of potential budget trade-offs that would achieve fleet re-capitalization goals within the framework of current Navy missions. Second, the analysis explored in greater detail a Marine Corps manpower rescission that illustrates the significant ramifications of even a relatively small budget cut. Finally, recognizing the inevitability of continued outsourcing in DoD, the study evaluated current outsourcing policy and initiatives using private-sector risk criteria popularized in the business literature.

Our study illustrated that defense planning documents call for a modern agile force with broadened operational capability to fight the war on terror. Navy planners have translated this vision into a plan to re-capitalize the battle fleet and naval air forces over the next two decades. Subsequently, Navy programmers have outlined the procurement milestones necessary to meet the goals established by the plan. Anticipating no significant increase in Navy TOA, the Sea Enterprise team is searching for internal efficiencies that may help finance additional procurement. However, the budget forecasts in this study suggest that the re-capitalization milestones are unrealistic unless the Navy is prepared to suffer unprecedeted cuts in competing programs.

If Navy TOA indeed remains capped near its current level, the internal trade-offs required to finance the desired fleet would cripple the Navy's ability to operate. For example, if Navy leaders cut MILPERS to finance procurement, then overall end strength must be reduced to 40% of the current level by 2008 and just 5% of the current level by 2009. If they choose a broader cut across not only MILPERS but also O&M and RDT&E, then overall end strength must still be reduced to roughly 65% of the current level by 2009 to sustain O&M spending at a rate that would support a fleet on only about 240 ships. Further, RDT&E spending in this scenario would probably be insufficient to sustain modernization at the required rate to achieve the re-capitalization goal by FY22.

As suggested by the Marine Corps rescission example included in our study, the road ahead demands aggressive change. To implement even a relatively small cut to MILPERS, Navy leaders must capture not only the short-term savings from things like streamlined personnel policy and innovative training methods, but also the long-term savings from more fundamental changes like restructuring overseas commands. But such sweeping change bears significant risk of unintended consequences. Thus, Navy leadership is taking a more incremental approach through the use of competitive sourcing.

Unfortunately, our study revealed that outsourcing alone is not a viable solution to the procurement financing problem. Although the savings achieved through outsourcing are impressive, they currently amount to only about 1.5% of Navy TOA. Such marginal savings will not significantly mitigate the re-capitalization budget dilemma. In fact, this study framed the budget problem with the assumption that non-procurement functions and programs would be *eliminated* rather than outsourced. If a capability is outsourced rather than eliminated, then fully 70% of the original program cost is retained.

Nevertheless, competitive sourcing remains a proven approach to generating savings that will be implemented throughout the Navy. Our study of private-sector outsourcing suggests that Navy leadership should take a strategic, iterative approach to sourcing decisions and balance potential cost savings with the strategic and operational risks inherent to any make-buy decision. The policy guidance in OMB Circular A-76 could be broadened by incorporating the lessons learned and “best practices” from both government and private-sector experience with outsourcing.

B THE ROAD AHEAD

Although this study suggested that the programmed re-capitalization is fiscally unrealistic, there are several avenues to improve the budget dilemma:

First, Navy leadership should continually re-examine the procurement milestones in the context of the global war on terror. Perhaps the call for a fleet of 375 ships and average aircraft age of 12 years will prove overly ambitious if the war on terror

progresses better than expected. Alternately, the requirement could be spread over a longer period than the current target of FY22.

Second, Navy leadership must continually push the TOA ceiling higher. Perhaps if Congress acts to reduce entitlement spending programs, then more will be available for national defense and homeland security. Navy leadership should use the compelling arguments in the defense planning documents and the supplemental appropriations to frame the argument for additional TOA baseline to finance procurement spending.

Third, the transformation initiated by Sea Enterprise must expand to all levels of Navy leadership. Although the marginal cost savings from business process transformation may not fully mitigate procurement funding shortfalls, the efficiencies realized move the budget steadily in the right direction. Additional savings from sources not considered in this study such as MILCON, Family Housing, BRAC and privatization may also contribute.

Fourth, The Navy must integrate procurement programming with the other services to leverage Department of Defense resources and avoid sub-optimizing Navy capital assets. Navy planners and programmers can capture marginal external benefit from the procurement programs of other services and defense agencies by demanding interoperability of Navy platforms with other weapons systems. Further, Navy shore infrastructure and support functions can be substantially streamlined by emphasizing “jointness” in all planning and programming decisions.

C. RECOMMENDATIONS FOR FURTHER STUDY

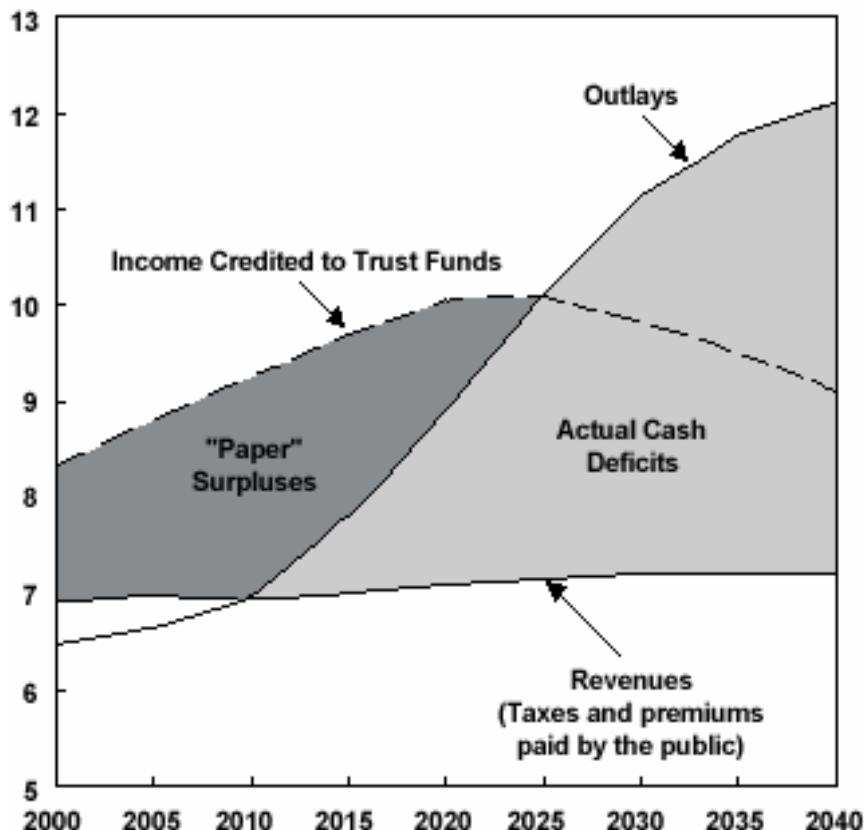
Our study suggests several avenues for further research. First, conduct continued analysis of potential budget trade-offs to identify actionable solutions to the looming recapitalization crisis. Second, perform financial analysis of individual cost savings initiatives in support of Sea Enterprise to streamline current operations. Third, contribute to the relatively small body of research on government experience with outsourcing. Focus particularly on a comprehensive evaluation of long-term *results* for a particular category of sourcing decisions. Fourth, consider changes to the A-76 competitive sourcing procedure that would implement an iterative, strategic-level decision process

informed by both the private-sector and government outsourcing experiences. Fifth, evaluate the effectiveness of recent changes to the formal resource allocation process. Focus particularly on the degree to which planning and programming decisions are fiscally-informed and the degree to which annual budgets present realistic spending goals.

APPENDIX A

PROJECTED OUTLAYS FOR SOCIAL SECURITY AND MEDICAID <by calendar year, as percent of GDP>

% GDP



CALENDAR

Source: Congressional Budget Office based on Social Security Administration, The 2002 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds (March 26, 2002); and Department of Health and Human Services, Centers for Medicare and Medicaid Services, Office of the Actuary, 2002 Annual Report of the Board of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds (March 26, 2002)

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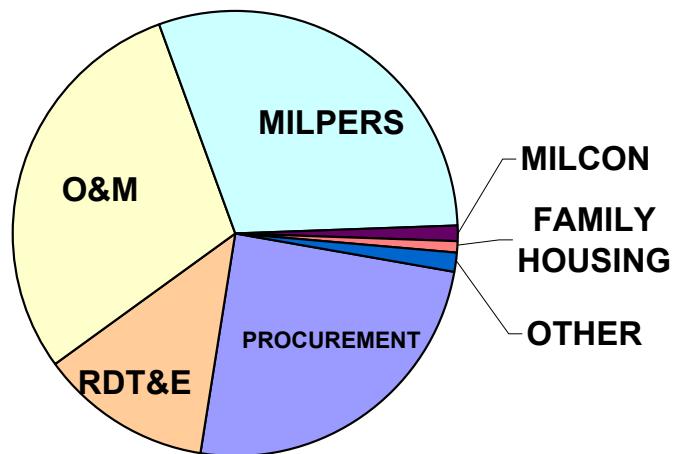
APPENDIX B

2004 DON BUDGET SUMMARY

<Dollars in Millions>

	Amount	% of TOA
PROCUREMENT	29,823	24.7%
RDT&E	14,970	12.4%
O&M	35,579	29.5%
MILPERS	36,367	30.1%
MILCON	1,329	1.1%
FAMILY HOUSING	1,013	0.8%
OTHER	1,675	1.4%
TOA	120,756	
TOA (less MILCON, FH, Other)	116,739	

FY2004 Navy TOA Components



Source: Department of Navy Fiscal Year 2004 Budget

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APPENDIX C

NEW SHIP CONSTRUCTION AND CONVERSIONS PROGRAMMED THROUGH 2009

<Dollars in Millions>

	2003	2004	2005	2006	2007	2008	2009
New Ship Construction (#)	5	7	8	7	7	9	14
New Construction Costs for 2003-2004 (\$)	6,971	8,460					
Total-Conversions (#)	2	3	2	2	2	3	3
Other SCN (#)	5	3	10	11	12	11	10
TOTAL SCN (#)	12	13	20	20	21	23	27
TOTAL COST (\$) (1)	9,108	11,402	14,600	13,650	14,000	16,600	22,750
	2003	2004	Future Est.				
Construction Costs per new construction(2)	1,394	1,208	1,300				
Conversion Costs per conversion and other SCN(3)	305	490	350				

Notes:

1. 2003-2004 numbers taken directly from DON budget. 2005-2009 numbers computed by multiplying the number of new constructions by the average new construction cost of 1,300, plus the number of conversions and other SCN multiplied by the average conversion cost of 350.
2. Computed by dividing the new construction costs by the number of new conversions in the applicable year. Projected future costs are an estimate of the costs per new construction in years 2005-2009.
3. These numbers are computed by subtracting the total cost of ship construction and conversion from the cost of New construction. This gives us the cost of conversions and other SCN. We then divide the cost of conversions and other SCN by the number of Conversions and other SCN to give us the costs per conversion and other SCN.

Source: Department of Navy Budgets for 2003 and 2004. 2005-2009 cost data forecasted by authors.

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APPENDIX D

NEW AND REMANUFACTURED AIRCRAFT PROGRAMMED THROUGH 2009

<Dollars in Millions>

	2003	2004	2005	2006	2007	2008	2009
New and Remanufactured Aircraft (#)	95	100	100	133	191	258	302
Projected Costs (\$) (1)	8,648	8,788	9,000	11,970	17,190	23,220	27,180
	2003	2004	Future Est.				
Average cost per aircraft (2)	91	88	90				

Notes:

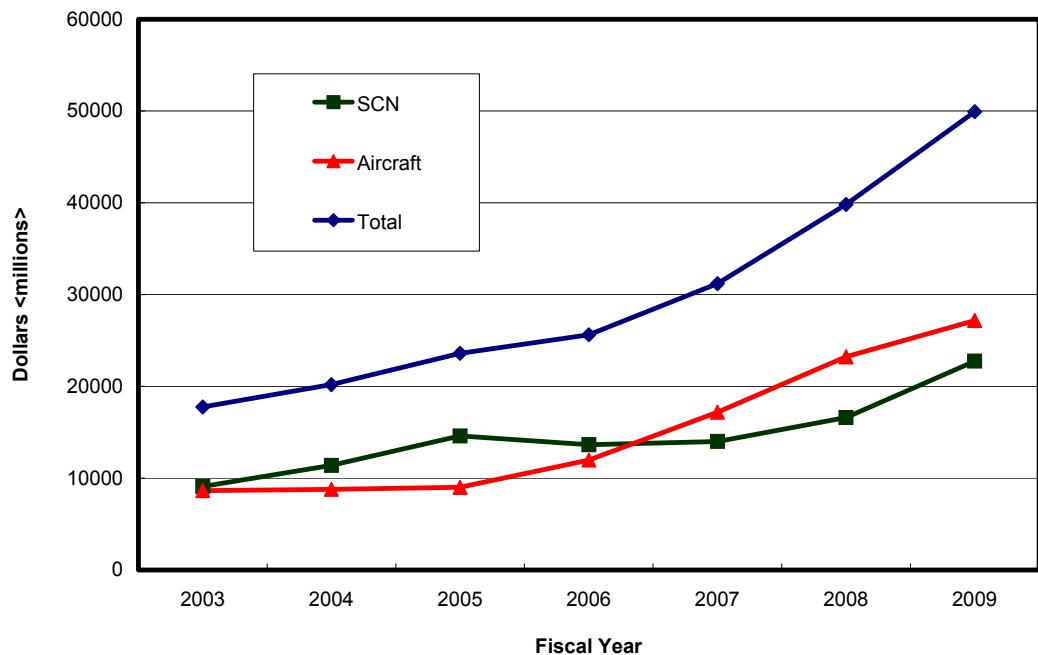
1. 2005-2009 projections computed by multiplying the number of new procurement and remanufactured aircraft programs in the applicable year by the projected future procurement and remanufactured programs cost of \$90M.
2. Computed by dividing the projected costs by the number of new procurement and remanufactured programs in the applicable year. Projected future costs are an estimate of the costs per new procurement and remanufactured programs in years 2005-2009.

Source: Department of Navy Budgets for 2003 and 2004. 2005-2009 cost data forecasted by authors.

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APPENDIX E

PROGRAMMED SCN AND AIRCRAFT PROCUREMENT COST GROWTH



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APPENDIX F

SUMMARY DON BUDGET DATA FOR FY2000-2004

	<Dollars in Millions>				
	2000	2001	2002	2003	2004
Procurement	23,526	26,607	24,517	27,451	29,823
RDT&E	9,065	9,596	11,379	13,700	14,970
O&M	27,322	29,523	32,403	42,537	35,579
MILPERS	25,608	26,966	30,012	36,183	36,367
Total	85,521	92,692	98,311	119,871	116,739
End Strength (1)	673,114	678,467	684,704	689,216	674,300
Number of Ships	318	316	313	296	292
<i>Category Unit Costs</i>					<i>Future Estimate</i>
MILPERS Unit Cost (\$/person) (2)	38,044	39,745	43,832	52,499	53,933
O&M Unit Cost (\$M/ship in fleet) (3)	86	93	104	144	122
					54,000 100
<i>Annual Percentage of non-Procurement Spending by Category (4)</i>					
RDT&E	0.15	0.15	0.15	0.15	0.17
O&M	0.44	0.45	0.44	0.46	0.41
MILPERS	0.41	0.41	0.41	0.39	0.42
					0.16 0.44 0.41

Notes:

1. End Strength includes Navy, Marine Corps, NR and MCR.
2. Personnel unit cost. MILPERS total divided by end strength. Future cost estimate selected for forecasting.
3. O&M unit cost. O&M total divided by fleet size. Future cost estimate selected for forecasting.
4. Annual category spending divided by difference of total spending and procurement. Future category ratios selected for forecasting.

Source: Department of Navy Budgets for 2000 through 2004

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APPENDIX G

RE-CAPITALIZATION BUDGET FORECAST - VERTICAL CUT OF MILPERS

	<Dollars in Millions>									
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Procurement (1)	23,526	26,607	24,517	27,451	29,823	31,467	34,160	41,587	49,775	62,413
RDT&E (2)	9,065	9,596	11,379	13,700	14,970	15,803	18,915	20,000	20,000	20,000
O&M (3)	27,322	29,523	32,403	42,537	35,579	32,403	32,403	32,403	32,403	32,403
MILPERS (4)	25,608	26,966	30,012	36,183	36,367	37,066	31,262	22,749	14,561	1,924
TOA (5)	85,521	92,692	98,311	119,871	116,739	116,739	116,739	116,739	116,739	116,739
Personnel (6)						686,415	578,917	421,284	269,648	35,620

Assumptions:

1. Zero inflation
2. TOA for these spending categories fixed at 116,739 after 2004
3. Ships and Aircraft represent 68% of overall procurement in 2004. Assume increase to 75% in 2005-2007 and 80% in 2008-2009
4. Forecast using historical average for RDT&E as 38% of procurement 2 years in the future (i.e. 2002 RDT&E is 38% of 2004 procurement)
5. O&M will remain constant at 2002 level
6. MILPERS unit cost for 2004 is \$53,933 (see appendix 6). Assume MILPERS unit cost fixed at \$54,000 after 2005
7. Assume vertical cut in MILPERS is not outsourced

Notes:

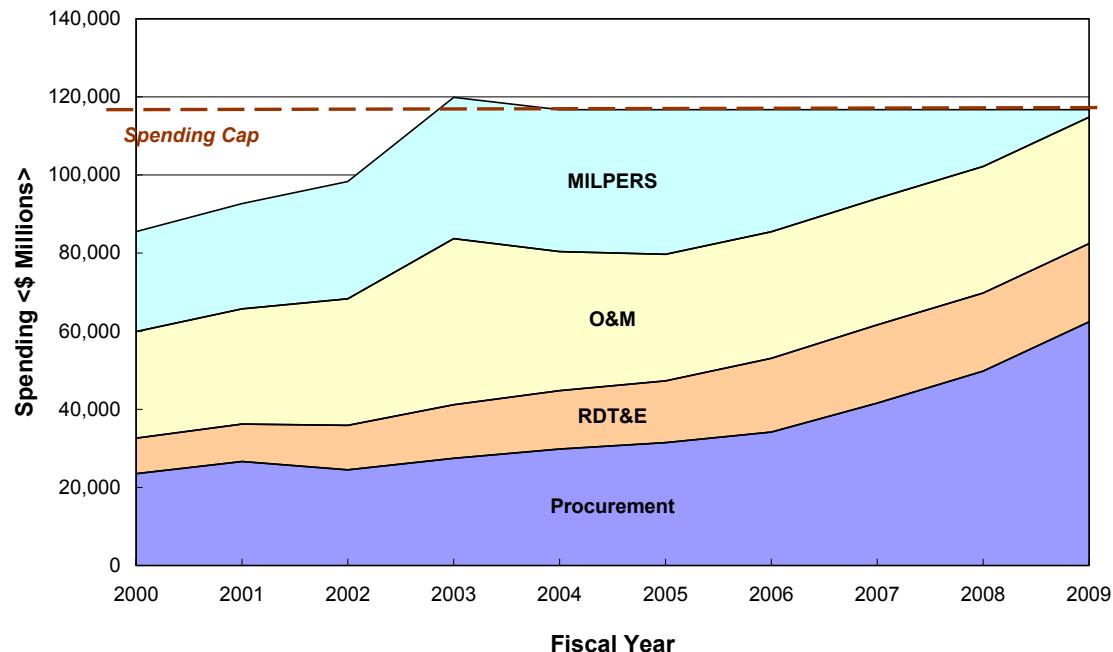
1. 2000-2004 figures from DON budget. Figures for 2005-2009 are the respective sums of ship and aircraft procurement forecasts from Appendices 3 and 4 divided by the percentage these categories will represent of overall procurement spending. Percentage is assumed to be 75% for 2005-2007 and 80% for 2008-2009.
2. 2000-2004 figures from DON budget. Figures for 2005-2006 reflect the historical average for spending RDT&E as 38% of the procurement number two years in the future. 2007-2009 RDT&E capped at 20,000
3. 2000-2004 figures from DON budget. 2005-2009 figures are held constant at the 2002 level
4. 2000-2004 figures from DON budget. 2005-2009 figures reflect a vertical cut to maintain TOA of 116,739
5. 2000-2004 numbers taken directly from DON budget. 2005-2009 held constant at the 2004 level.
6. These numbers represent the total number of personnel that the Navy could afford using the projected MILPERS spending in the applicable years. Calculated by dividing projected MILPERS dollars by estimated MILPERS unit cost of \$54,000 (see appendix 6 for MILPERS unit cost calculations)

Source: Department of Navy Budgets for 2000 through 2004. 2005-2009 data forecasted by authors.

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APPENDIX H

NAVY BUDGET FORECAST - VERTICAL CUT OF MILPERS



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APPENDIX I

RE-CAPITALIZATION BUDGET FORECAST - HORIZONTAL CUT OF RDT&E, O&M, MILPERS

	<Dollars in Millions>									
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Procurement (1)	23,526	26,607	24,517	27,451	29,823	31,467	34,160	41,587	49,775	62,413
RDT&E (2)	9,065	9,596	11,379	13,700	14,970	13,644	13,213	12,024	10,714	8,692
O&M (3)	27,322	29,523	32,403	42,537	35,579	37,520	36,335	33,067	29,464	23,904
MILPERS (4)	25,608	26,966	30,012	36,183	36,367	34,962	33,857	30,812	27,455	22,274
TOA (5)	85,521	92,692	98,311	119,871	116,739	116,739	116,739	116,739	116,739	116,739
Personnel (6)						647,438	626,989	570,601	508,430	412,479
Supported Fleet Size (O&M) (7)						375	363	331	295	239

Assumptions:

- Zero inflation
- TOA will be fixed at 116,379 after 2004
- Aircraft procurement and SCN is 68% of overall procurement in 2004. Assume percentage increases to 75% in 2005-2007 and 80% in 2008-2009
- Assume no outsourcing

Notes:

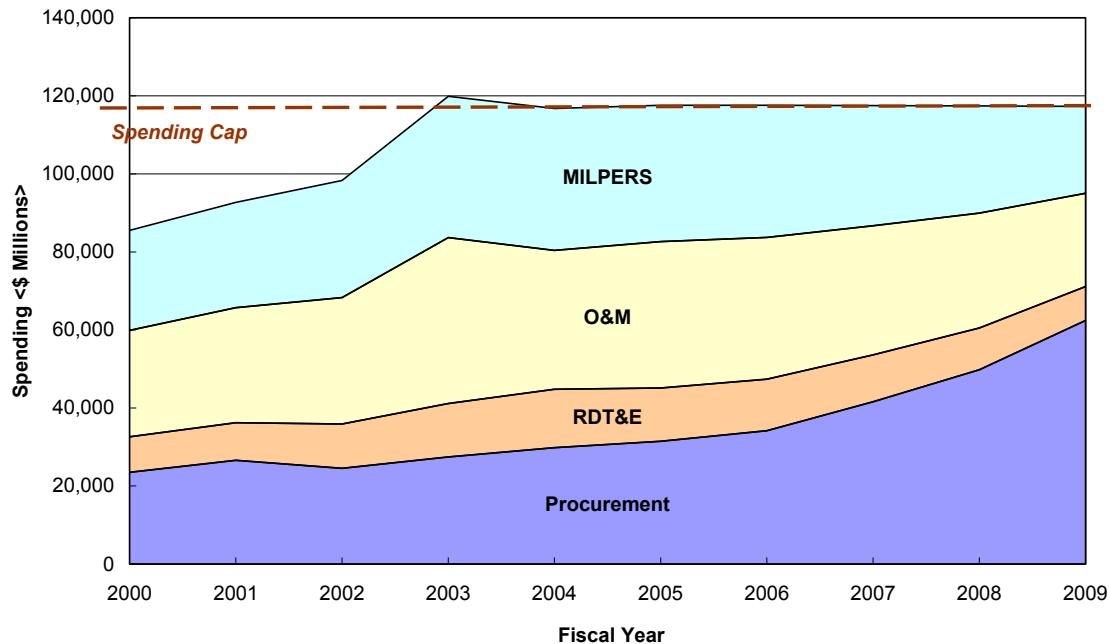
1. 2000-2004 figures from DON budget. Figures for 2005-2009 are the respective sums of ship and aircraft procurement forecasts from Appendices 3 and 4 divided by the percentage these categories will represent of overall procurement spending. Percentage is assumed to be 75% for 2005-2007 and 80% for 2008-2009.
2. 2000-2004 figures from DON budget. 2005-2009 figures forecasted as 16% of annual non-procurement spending. Percentage based on 2000-2004 RDT&E ratio
3. 2000-2004 figures from DON budget. 2005-2009 figures forecasted as 43% of annual non-procurement spending. Percentage based on 2000-2004 O&M ratio
4. 2000-2004 figures from DON budget. 2005-2009 figures forecasted as 41% of annual non-procurement spending. Percentage based on 2000-2004 MILPERS ratio
5. 2000-2004 figures taken directly from DON budget. 2005-2009 held constant at the 2004 level
6. These numbers represent the total number of personnel that the Navy could afford using the projected MILPERS spending in the applicable years. Calculated by dividing projected MILPERS dollars by estimated MILPERS unit cost of \$54,000 (see appendix 6 for MILPERS unit cost calculations)
7. These numbers represent the total number of ships that could be supported by projected O&M spending in the applicable years. Calculated by dividing projected O&M dollars by the estimated O&M unit cost of \$100M per ship (see appendix 6 for O&M unit cost calculation)

Source: Department of Navy Budgets for 2000 through 2004. 2005-2009 data forecasted by authors.

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APPENDIX J

NAVY BUDGET FORECAST - HORIZONTAL CUT OF RDT&E, O&M, MILPERS



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APPENDIX K

PROJECTED SAVINGS FROM COMPETITIVE OUTSOURCING

<Dollars In Millions>

	2003	2004	2005
Navy	1,001	1,479	1,642
Marine Corps	88	105	105
Total	1,089	1,584	1,747
Navy TOA	119,871	116,739	116,739
% of TOA	0.91%	1.36%	1.50%

Source: United States. Executive Office of the President. "Big Savings Expected from Competitive Sourcing Initiative." Washington: Office of Management and Budget, 29 May 2003.

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